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U.S. DEPARTMENT OF THE INTERIOR
March 3, 1849

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Water Resources Data for South Dakota

U.S. GEOLOGICAL SURVEY WATER-DATA REPORT SD-78-1

WATER YEAR 1978

Prepared in cooperation with the State of
South Dakota and with other agencies

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U. S. DEPARTMENT OF COMMERCE
SPRINGFIELD, VA. 22161

CALENDAR FOR WATER YEAR 1978

1977

OCTOBER

S	M	T	W	T	F	S
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1978

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Water resources data for the 1978 water year for South Dakota consists of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels in wells. This report contains discharge records for 103 gaging stations; stage and contents for 9 lakes and reservoirs; water quality for 25 gaging stations and 62 wells; and water levels for 16 observation wells. Also included are 101 crest-stage partial-record stations. Additional water data were collected ar various sites, not part of the systematic data-collection program, and are published as miscellaneous measurements and analyses. These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

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Water Resources Data for South Dakota

U.S.GEOLOGICAL SURVEY WATER-DATA REPORT SD-78-1

WATER YEAR 1978

Prepared in cooperation with the State of
South Dakota and with other agencies

UNITED STATES DEPARTMENT OF THE INTERIOR

CECIL D. ANDRUS, Secretary

GEOLOGICAL SURVEY

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Huron, South Dakota 57350

1979

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GAGING STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

[*Letter after station name designates type of data: (d) discharge, (c) chemical, (b) biological, (m) microbiological, (t) water temperature, (s) sediment*]

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WATER RESOURCES DATA FOR SOUTH DAKOTA, 1978

INTRODUCTION

Water resources data for the 1978 water year for South Dakota consist of records of stage, discharge, and water quality of streams; stage, contents, and water quality of lakes and reservoirs; and water levels and water quality of ground water. . This report contains discharge records for gaging stations; stage and contents for 10 lakes and reservoirs; water quality for 25 gaging stations, and 62 wells; and water levels for 16 observation wells. Also included are 101 crest-stage partial-record stations. Additional water data were collected at various sites, not involved in the systematic data collection program, and are published as miscellaneous measurements. These data represent that part of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in South Dakota.

Records of discharge or stage of streams, and contents or stage of lakes and reservoirs were first published in a series of U.S. Geological Survey water-supply papers entitled "Surface Water Supply of the United States." Through September 30, 1960, these water-supply papers were in an annual series and then in a 5-year series for 1961-65 and 1966-70. Records of chemical quality, water temperatures, and suspended sediment were published from 1941 to 1970 in an annual series of water-supply papers entitled "Quality of Surface Waters of the United States." Records of ground-water levels were published from 1935 to 1974 in a series of water-supply papers entitled "Ground-Water Levels in the United States." Water-supply papers may be consulted in the libraries of the principal cities in the United States or may be purchased from Branch of Distribution, U.S. Geological Survey, 1200 South Eads Street, Arlington, VA 22202.

For water years 1961 through 1974, streamflow data were released by the Geological Survey in annual reports on a State-boundary basis. Water-quality records for water years 1964 through 1974 were similarly released either in separate reports or in conjunction with streamflow records. Beginning with the 1975 water year, water data for streamflow, water quality, and ground water are published as an official Survey report on a State-boundary basis. These official Survey reports carry an identification number consisting of the two letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report SD-78-1." Water-Data reports are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161.

COOPERATION

The U.S. Geological Survey and organizations of the State of South Dakota have had cooperative agreements for the systematic collection of surface-water records since 1914, for ground-water levels since 1935, and for water-quality records since 1947. Organizations that assisted in collecting data through cooperative agreement with the Survey are:

Department of Natural Resource Development, Vern W. Butler, secretary.

Department of Transportation, H. J. Decker, secretary.

East Dakota Conservancy Sub-district, J. L. Siegel, manager-engineer.

Black Hills Conservancy Sub-district, Ed Glassgow, manager-treasurer.

Assistance in the form of funds or services was given by the Corps of Engineers, U.S. Army, in collecting records for 24 gaging, 10 stage, and one water-quality station, the Bureau of Reclamation, U.S. Department of Interior, for 4 gaging stations; the Fish and Wildlife Service, U.S. Department of Interior, for one gaging station; and the Environmental Protection Agency, for 2 water-quality stations. The Missouri River basin development program provided funds for gaging and 21 water-quality stations.

Organizations that supplied data are acknowledged in station descriptions.

ACKNOWLEDGMENT

South Dakota district personnel who contributed significantly to the collection and preparation of the data in this report were: O. J. Larimer, chief, Hydrologic Surveillance and Analysis Section, N. F. Leibbrand, J. H. Eade, H. L. Dixson, L. D. Becker, D. W. Heyd, and E. M. Decker.

HYDROLOGIC CONDITIONS

Combined storage in the four Missouri River main-stem reservoirs (Lakes Oahe, Sharpe, Francis Case, and Lewis and Clark) was 26,200,000 acre-feet at the end of the water year, an increase of 4,395,000 acre-feet from the corresponding date a year ago.

Combined storage in the other major reservoirs (Shadehill, Angostura, Deerfield, Pactola, and Belle Fourche) was 332,255 acre-feet, an increase of 118,344 acre-feet from the same date a year ago.

Rainfall was from 5 to 8 inches above normal in the southern and eastern portions of the State while the rest of the State was 2 to 5 inches above normal at the beginning of the 1978 water year. Moisture and runoff continued generally above normal throughout the year.

A comparison of monthly and yearly mean discharge with the median discharge for the 30-year base period (1941-70) for two key gaging stations is shown in figure 2.

NOTICE

During water year 1978, revisions were made in the terminology used to define 143 of the water-quality parameter codes that have been used by the Geological Survey in its publication of water-quality data and in its WATSTORE data system. These revisions were made to achieve consistency in terminology and to conform to a joint USGS-EPA agreement on terminology. They do not represent a change in the way the codes have been used in the past or in the association of specific code numbers with identified analytical procedures.

Use of the new terminology began with data for the 1978 water year, and therefore, it first appears in this publication. Definitions on which the terminology is based are included in the "Definitions" section of this report, and a table showing both old and new terminology is attached as an appendix to the report.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. See also the table for converting English units to International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is the primary energy donor in cellular life process. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae are mostly aquatic single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Algal growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as the organisms which produce colonies within 24 hours when incubated at 35°C ± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C ± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C ± 1.0°C on M-enterrococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and ash mass, and represents the actual mass of the living matter. The organic mass is expressed in the same units as for ash mass and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Cfs-day is the volume of water represented by flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons or 2,447 cubic meters.

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Cubic foot per second (FT^3/s, ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to approximately 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Instantaneous discharge is the discharge at a particular instant of time.

Dissolved refers to the material in a representative water sample which passes through a 0.45 µm membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determination of "dissolved" constituents are made on subsamples of the filtrate.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^{s} \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specific location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an 8-digit number.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element sorbed per unit mass (gram) of sediment.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture.

National Geodetic Vertical Datum of 1929 (NGVD) is a geodetic datum derived from a general adjustment of the first order level nets of both the United States and Canada. It was formerly called "Sea Level Datum of 1929" or "mean sea level" in this series of reports. Although the datum was derived from the average sea level over a period of many years at 26 tide stations along the Atlantic, Gulf of Mexico, and Pacific Coasts, it does not necessarily represent local mean sea level at any particular place.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meters (m^2), acres, or hectares. Periphyton benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter code numbers are unique five-digit code numbers assigned to each parameter placed into storage. These codes are assigned by the Environmental Protection Agency and are also used to identify data exchanged among agencies.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of suspended sediment or bed material determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology.

The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay..........	0.00024 - 0.004	Sedimentation.
Silt..........	.004 - .062	Sedimentation.
Sand..........	.062 - 2.	Sedimentation or sieve.
Gravel........	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Pesticides are chemical compounds used to control undesirable plants and animals. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides. Insecticides and herbicides, which control insects and plants respectively, are the two categories reported.

Picocurie (PC, pCi) is one trillionth (1×10^{12}) of the amount of radioactivity represented by a curie (CI). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells/mL of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells/mL of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m^2·time) for periphyton and macrophytes and mg C/(m^3·time) for phytoplankton] are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either the hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mg O_2/(m^2·time) for periphyton and macrophytes and mg O_2/(m^3·time) for phytoplankton] are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of only readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Suspended-sediment discharge (tons/day) is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment, as measured by dry weight or volume, that passes a section in a given time. It is computed by multiplying discharge time mg/L times 0.0027.

Suspended-sediment load is quantity of suspended sediment passing a section in a specified period.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry weight or volume, that passes a section during a given time.

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current. It is expressed in micromhos per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lived.

Natural substrates refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lived.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multi-plate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimetered. All areas shown are those for the stage when the planimetered map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. The water-sediment mixture is associated with (or sorbed on) that material retained on a 0.45 micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of a representative water-suspended sediment sample that is retained on a 0.45 µm membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata* is the following:

Kingdom	Animal
Phylum	Arthropoda
Class	Insecta
Order	Ephemeroptera
Family	Ephemeridae
Genus	*Hexageria*
Species	*Hexagenia limbata*

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by 0.00136.

Tons per day is the quantity of substance in solution or suspension that passes a stream section during a 24-hour day.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determines all of the constituent in the sample.)

Total in bottom material is the total amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total in bottom material."

Total load (tons) is the total quantity of any individual constituent, as measured by dry mass or volume, that is dissolved in a specific amount of water (discharge) during a given time. It is computed by multiplying the total discharge, times the mg/L of the constituent, times the factor 0.0027, times the number of days.

Total, recoverable refers to the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent percent in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WRD is used as an abbreviation for "Water-Resources Data" in the REVISED RECORDS paragraph to refer to State annual basic-data reports published before 1975.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

DOWNSTREAM ORDER AND STATION NUMBER

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary on which a station is situated with respect to the stream to which it is immediately tributary is indicated by an indention in a list of stations in the front of the report. Each indention represents one rank. This downstream order and system of indention show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 06442500, which appears just to the left of the station name, includes the 2-digit part number "06" plus the 6-digit downstream order number "442500".

NUMBERING SYSTEM FOR WELLS AND MISCELLANEOUS SITES

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. See figure 1 following page.

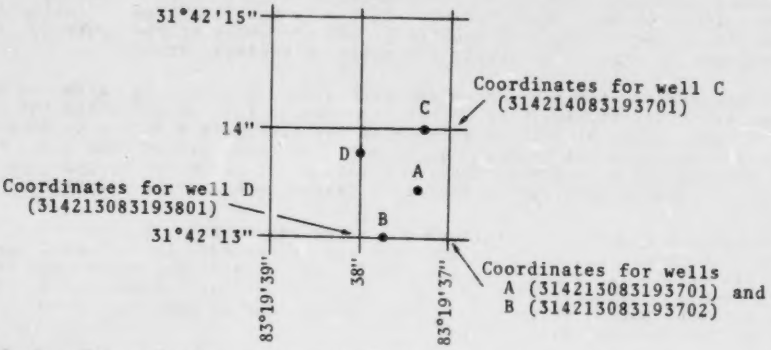


Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude)

SPECIAL NETWORKS AND PROGRAMS

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from manmade changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network (NASQAN) is a data collection network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated into the network design. Areal configuration of the network is based on river-basin accounting units (identified by 8-digit hydrologic-unit numbers) designated by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of streamflow and water-quality conditions nationwide on a year-by-year basis and (2) to detect and assess long-term changes in streamflow and stream quality.

Pesticide program is a network of regularly sampled water-quality stations where samples are collected to determine the concentration and distribution of pesticides in streams where potential contamination could result from the application of the commonly used insecticides and herbicides. Operation of the network is a Federal interagency activity.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF STAGE AND WATER-DISCHARGE RECORDS

Collection and computation of data

The base data collected at gaging stations consist of records of stage and measurements of discharge of streams or canals, and stage, surface area, and contents of lakes or reservoirs. In addition, observations of factors affecting the stage-discharge relation or the stage-capacity relation, weather records, and other information are used to supplement base data in determining the daily flow or volume of water in storage. Records of stage are obtained from either direct readings on a nonrecording gage or from a water-stage recorder that gives either a continuous graph of the fluctuations or a tape punched at selected time intervals. Measurements of discharge are made with a current meter, using the general methods adopted by the Geological Survey. These methods are described in standard text-books, in Water-Supply Paper 888, and in U.S. Geological Survey Techniques of Water Resources Investigations, book 3, chapter A6.

For stream-gaging stations, rating tables giving the discharge for any stage are prepared from stage-discharge relation curves. If extensions to the rating curves are necessary to express discharge greater than measured, they are made on the basis of indirect measurements of peak discharge (such as slope-area or contracted-opening measurements, computation of flow over dams or weirs), step-backwater techniques, velocity-area studies, and logarithmic plotting. The daily mean discharge is computed from gage heights and rating tables, then the monthly and yearly mean discharge are computed from the daily figures. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is computed by the shifting-control method, in which correction factors based on individual discharge measurements and notes by engineers and observers are used in applying the gage heights to the rating tables. If the stage-discharge relation for a station is temporarily changed by the presence of aquatic growth or debris on the control, the daily mean discharge is computed by what is basically the shifting-control method.

At some stream-gaging stations the stage-discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

At some northern stream-gaging stations the stage-discharge relation is affected by ice in the winter, and it becomes impossible to compute the discharge in the usual manner. Discharge for periods of ice effect is computed on the basis of gage-height record and occasional winter discharge measurements. Consideration is given to the available information on temperature and precipitation, notes by gage observers and hydrologists, and comparable records of discharge for other stations in the same or nearby basins.

For a lake or reservoir station, capacity tables giving the contents for any stage are prepared from stage-area relation curves defined by surveys. The application of the stage to the capacity table gives the contents, from which the daily, monthly, or yearly change in contents is computed.

If the stage-capacity curve is subject to changes because of deposition of sediment in the reservoir, periodic resurveys of the reservoir are necessary to define new stage-capacity curves. During the period between reservoir surveys the computed contents may be increasingly in error due to the gradual accumulation of sediment.

For some gaging stations there are periods when no gage-height record is obtained or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods the daily discharges are estimated on the basis of recorded range in stage, prior and subsequent records, discharge measurements, weather records, and comparison with records for other stations in the same or nearby basins. Likewise daily contents may be estimated on the basis of operator's log, prior and subsequent records, inflow-outflow studies, and other information.

The data in this report generally comprise a description of the station and tabulations of daily and monthly figures. For gaging stations on streams or canals a table showing the daily discharge and monthly and yearly discharge is given. For gaging stations on lakes and reservoirs a monthly summary table of stage and contents or a table showing the daily contents is given. Tables of daily mean gage heights are included for some streamflow stations and for some reservoir stations. Records are published for the water year, which begins on October 1 and ends on September 30.

The description of the gaging station gives the location, drainage area, period of record, notations of revisions of previously published records, type and history of gages, general remarks, average discharge, and extremes of discharge or contents. The location of the gaging station and the drainage area are obtained from most accurate maps available. River mileage, given under "LOCATION" for some stations, is that determined and used by the Corps of Engineers or other agencies. Periods for which there are published records for the present station or for stations generally equivalent to the present one are given under "PERIOD OF RECORD."

Previously published streamflow records of some stations have been found to be in error on the basis of data or information later obtained. Revisions of such records are usually published along with the current records in one of the annual or compilation reports. In order to make it easier to find such revised records, a paragraph headed "REVISED RECORDS" has been added to the description of all stations for which revised records have been published. Listed therein are all the reports in which revisions have been published, each followed by the water years for which figures are revised in that report. In listing the water years only one number is given; for instance, 1965 stands for the water year October 1, 1964, to September 30, 1965. If no daily, monthly, or annual figures of discharge are affected by the revision, the fact is brought out by notations after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the revised figure was first published is given. It should be noted that for all stations for which cubic feet per second per square mile and runoff in inches are published, a revision of the drainage area necessitates corresponding revision of all figures based on the drainage area. Revised figures of cubic feet per second per square mile and runoff in inches resulting from a revision of the drainage area only are usually not published in the annual series of reports.

The type of gage currently in use; the datum of the present gage referred to National Geodetic Vertical Datum; and a condensed history of the types, locations, and datums of previous gages used during the period of record are given under "GAGE." National Geodetic Vertical Datum is explained in "DEFINITION OF TERMS" on page 4.

Information pertaining to the accuracy of the discharge records and to conditions which affect the natural flow of the gaging station is given under "REMARKS." For reservoir stations information on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir is given under "REMARKS."

The average discharge for the number of years indicated is given under "AVERAGE DISCHARGE"; it is not given for stations having fewer than 5 complete years of record or for stations where changes in water development during the period of record cause the figure to have little significance. In addition, the median of yearly mean discharges is given for stream-gaging stations having 10 or more complete years of record if the median differs from the average by more than 10 percent. Under "EXTREMES" are given first, the extremes for the period of record, second, information available outside the period of record, and last, those for the current year. Unless otherwise qualified, the maximum discharge (or contents) is the instantaneous maximum corresponding to the crest stage obtained by use of a water-stage recorder (graphic or digital), a crest-stage gage, or a nonrecording gage read at the time of the crest. If the maximum gage height did not occur on the same day as the maximum discharge (or contents), it is given separately. Similarly, the minimum is the instantaneous minimum unless otherwise qualified. For some stations peak discharges are listed with EXTREMES FOR THE CURRENT YEAR; if they are, all independent peaks, including the maximum for the year, above the selected base with the time of occurrence and corresponding gage heights are published in tabular format. The base discharge, which is given in the table heading, is selected so that an average of about three peaks a year will be presented. Peak discharges are not published for any canals, ditches, drains, or for any stream for which the peaks are subject to substantial control by man. Time of day is expressed in 24-hour local standard time; for example, 12:30 a.m. is 0030, 1:30 p.m. is 1330. The minimums for these stations are published in a separate paragraph following the table of peaks.

Skeleton rating tables are published, immediately following EXTREMES, for stream-gaging stations where they serve a useful purpose and the dates of applicability can be easily identified.

The daily table for stream-gaging stations gives the mean discharge for each day and is followed by monthly and yearly summaries. In the monthly summary below the daily table, the line headed "TOTAL" gives the sum of the daily figures. The line headed "MEAN" gives the average flow in cubic feet per second during the month. The lines headed "MAX" and "MIN" give the maximum and minimum daily discharges, respectively, for the month. Discharge for the month also may be expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN"), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion, if the drainage area includes large noncontributing areas, or if the average annual rainfall over the drainage basin is usually less than 20 inches. In the yearly summary below the monthly summary, the figures shown are the appropriate daily discharges for the calendar and water years.

Footnotes to the table of daily discharge are introduced by the word "NOTE." Footnotes are used to indicate periods for which the discharge is computed or estimated by special methods because of no gage-height record, backwater from various sources, or other unusual conditions. Periods of no gage-height record are indicated if the period is continuous for a month or more or includes the maximum discharge for the year. Periods of backwater from an unusual source, of indefinite stage-discharge relation, or of any other unusual condition at the gage site are indicated only if they are a month or more in length and the accuracy of the records is affected. Days on which the stage-discharge relation is affected by ice are not indicated. The methods used in computing discharge for various unusual conditions have been explained in preceding paragraphs.

For most gaging stations on lakes and reservoirs the data presented comprise a description of the station and a monthly summary table of stage and contents. For some reservoirs a table showing daily contents or stage is given. A skeleton table of capacity at given stages is published for all reservoirs for which records are published on a daily basis, but is not published for reservoirs for which only monthly data are given.

Data collected at partial-record stations follow the information for continuous record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of discharge measurements at low-flow partial-record stations, and the second is a table of annual maximum stage and discharge at crest-stage stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. Occasionally, a series of discharge measurements are made within a short time period to investigate the seepage gains or losses along a reach of a stream or to determine the low-flow characteristics of an area. Such measurements are also given in special tables following the tables of partial-record stations.

Accuracy of field data and computed results

The accuracy of streamflow data depends primarily on (1) the stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of observations of stage, measurements of discharge, and interpretations of records.

The station description under "REMARKS" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent; "good", within 10 percent; and "fair" within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Figures of daily mean discharge in this report are shown to the nearest hundredth of a cubic foot per second for discharges of less than 1 ft^3/s; to tenths between 1.0 and 10 ft^3/s; to whole numbers between 10 and 1,000 ft^3/s; and to 3 significant figures above 1,000 ft^3/s. The number of significant figures used is based solely on the magnitude of the figure. The same rounding rules apply to discharge figures listed for partial-record stations.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff due to the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation due to artificial causes, or to other factors. For such stations, figures of cubic feet per second per square mile and of runoff in inches are not published unless satisfactory adjustments can be made for diversions, for changes in contents of reservoirs, or for other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

Other data available

Information of a more detailed nature than that published for most of the gaging stations such as observations of water temperatures, discharge measurements, gage-height records, and rating tables is on file in the district office. Also most gaging-station records are available in computer-usable form and many statistical analyses have been made.

Information on the availability of unpublished data or statistical analyses may be obtained from the district office.

Records of discharge collected by agencies other than the Geological Survey

The National Water Data Exchange, Water Resources Division, U.S. Geological Survey, National Center, Reston, Va. 22092, maintains an index of all discharge measurement sites in the State. Information on records available at specific sites can be obtained upon request.

EXPLANATION OF WATER-QUALITY RECORDS

Collection and examination of data

Surface water samples for analyses usually are collected at or near gaging stations. The quality-of-water records are given immediately following the discharge records at these stations.

The descriptive heading for water-quality records gives the period of record for all water-quality data; the period of daily record for parameters that are measured on a daily basis (specific conductance, pH, dissolved oxygen, water temperature, sediment discharge, etc.); extremes for the period of daily record; extremes for the current year; and general remarks.

For ground-water records, no descriptive statements are given; however, the well number, depth of well, date of sampling and/or other pertinent data are given in the table containing the chemical analyses of the ground water.

Water analysis

Most methods for collecting and analyzing water samples are described in the U.S. Geological Survey Techniques of Water-Resources Investigations listed on a following page.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the district office.

Water temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diel temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided day method. For periods when no samples were collected, daily loads of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

EXPLANATION OF GROUND-WATER LEVEL RECORDS

Collection of the data

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 1.

Measurements are made in many types of wells, under varying conditions of access and at different temperatures, hence, neither the method of measurement nor the equipment can be standardized. At each observation well, however, the equipment and techniques used are those that will ensure that measurements at each well are consistent.

Water-level measurements in this report are given in feet with reference to either mean sea level (msl) or land-surface datum (lsd). Mean sea level is the datum plane on which the national network of precise levels is based; land-surface datum is a datum plane that is approximately at land surface at each well. If known, the altitude of the land-surface datum above mean sea level is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every fifth day and the end of each month (eom).

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error in determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water the accuracy is greater. Accordingly, most measurements are reported to a hundredth of a foot, but some are given only to a tenth of a foot or a larger unit.

PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

Thirty-four manuals by the U.S. Geological Survey have been published to date in the series on techniques describing procedures for planning and executing specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) is on surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises. The reports listed below are for sale by the U.S. Geological Survey, Branch of Distribution, 1200 South Eads Street, Arlington, VA 22202 (authorized agent of the Superintendent of Documents, Government Printing Office. Prices are effective October 1978 but are subject to change.

NOTE: When ordering any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations".

1-D1. *Water temperature-influential factors, field measurement, and data presentation*, by H. H. Stevens Jr., J. F. Ficke, and G. F. Smoot: USGS--TWRI Book 1, Chapter D1. 1975. 65 pages. $1.60.

1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W.Wood: USGS--TWRI Book 1, Chapter D2. 1976. 24 pages. $0.85

2-D1. *Application of surface geophysics to ground-water investigations*, by A. A. R. Zohdy, G. P. Eaton, and D. R. Mabey: USGS--TWRI Book 2, Chapter D1. 1974. 116 pages. $1.90.

2-E1. *Application of borehole geophysics to water-resources investigations*, by W. S. Keys and L. M. MacCary: USGS--TWRI Book 2, Chapter E1. 1971. 126 pages. $1.75.

3-A1. *General field and office procedures for indirect discharge measurements*, by M. A. Benson and Tate Dalrymple: USGS--TWRI Book 3, Chapter A1. 1967. 30 pages. $1.00.

3-A2. *Measurement of peak discharge by the slope-area method*, by Tate Dalrymple and M. A. Benson: USGS--TWRI Book 3, Chapter A2. 1967. 12 pages. $0.35.

3-A3. *Measurement of peak discharge at culverts by indirect methods*, by G. L. Bodhaine: USGS--TWRI Book 3, Chapter A3. 1968. 60 pages. $0.40.

3-A4. *Measurement of peak discharge at width contractions by indirect methods*, by H. F. Matthai: USGS--TWRI Book 3, Chapter A4. 1967. 44 pages. $1.00.

3-A5. *Measurement of peak discharge at dams by indirect methods*, by Harry Hulsing: USGS--TWRI Book 3, Chapter A5. 1967. 29 pages. $0.35.

3-A6. *General procedure for gaging streams*, by R. W. Carter and Jacob Davidian: USGS--TWRI Book 3, Chapter A6, 1968, 13 pages. $1.00.

3-A7. *Stage measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A7. 1968. 28 pages. $1.40.

3-A8. *Discharge measurements at gaging stations*, by T. J. Buchanan and W. P. Somers: USGS--TWRI Book 3, Chapter A8. 1969. 65 pages. $1.25.

3-A11. *Measurement of discharge by moving-boat method*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 3, Chapter A11. 1969. 22 pages. $1.20.

3-A12. *Fluorometric procedures for dye tracing*, by J. F. Wilson Jr.: USGS--TWRI Book 3, Chapter A12. 1968. 31 pages. $0.35. Not currently available.

3-B1. *Aquifer-test design, observation, and data analysis*, by R. W. Stallman: USGS--TWRI Book 3, Chapter B1. 1971. 26 pages. $0.70.

3-B2. *Introduction to ground-water hydraulics, a programed text for self-instruction*, by G. D. Bennett: USGS--TWRI Book 3, Chapter B2 1976. 172 pages. $2.50.

3-C1. *Fluvial sediment concepts*, by H. P. Guy: USGS--TWRI Book 3, Chapter C1. 1970. 55 pages. $2.50.

3-C2. *Field methods for measurement of fluvial sediment*, by H. P. Guy and V. W. Norman: USGS--TWRI Book 3, Chapter C2, 1970. 59 pages. $2.50.

3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS--TWRI Book 3, Chapter C3. 1972. 66 pages. $2.10.

4-A1. *Some statistical tools in hydrology*, by H. C. Riggs: USGS--TWRI Book 4 Chapter A1. 1968. 39 pages. $1.60.

4-A2. *Frequency curves*, by H. C. Riggs: USGS--TWRI Book 4, Chapter A2. 1968. 15 pages. $1.20

4-B1. *Low-flow investigations*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B1. 1972, 18 pages. $0.65.

4-B2. *Storage analyses for water supply*, by H. C. Riggs and C. H. Hardison: USGS--TWRI Book 4, Chapter B2. 1973. 20 pages. $0.75.

4-B3. *Regional analyses of streamflow characteristics*, by H. C. Riggs: USGS--TWRI Book 4, Chapter B3. 1973. 15 pages. $0.65.

4-D1. *Computation of rate and volume of stream depletion by wells*, by C. T. Jenkins: USGS--TWRI Book 4, Chapter D1. 1970. 17 pages. $1.10.

5-A1. *Methods for collection and analysis of water samples for dissolved minerals and gases*, by Eugene Brown, M. W. Skougstad, and M. J. Fishman: USGS--TWRI Book 5, Chapter A1. 1970. 160 pages. $2.40.

5-A2. *Determination of minor elments in water by emission spectroscopy*, by P. R. Barnett and E. C. Mallory, Jr.: USGS--TWRI Book 5, Chapter A2. 1971. 31 pages. $0.80.

5-A3. *Methods for analysis of organic substances in water*, by D. F. Goerlitz and Eugene Brown: USGS--TWRI Book 5, Chapter A3. 1972. 40 pages. $0.90.

5-A4.* *Methods for collection and analysis of aquatic biological and microbiological samples*, edited by P.E. Greeson, T.A. Ehlke, G.A. Irwin, B.W. Lium, and K.V. Slack: USGS--TWRI Book 5, Chapter A4. 1977. 332 pages. $20.00.

5-A5.* *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W. Edwards: USGS--TWRI Book 5, Chapter A5. 1977. 95 pages. $16.00.

5-C1. *Laboratory theory and methods for sediment analysis*, by H. P. Guy: USGS--TWRI Book 5, Chapter C1. 1969. 58 pages. $2.10.

7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P. C. Trescott, G. F. Pinder, and S. P. Larson: USGS--TWRI Book 7, Chapter C1. 1976. 116 pages. $2.30.

8-A1. *Methods of measuring water levels in deep wells*, by M. S. Garber and F. C. Koopman: USGS--TWRI Book 8, Chapter A1. 1968. 23 pages. $0.70.

8-B2. *Calibration and maintenance of vertical-axis type current meters*, by G. F. Smoot and C. E. Novak: USGS--TWRI Book 8, Chapter B2. 1968. 15 pages. $1.10.

*These publications are available ONLY from Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. They are in looseleaf format and are subscription items. Additional supplements will be issued to subscribers at no extra cost. Checks should be made payable to Superintendent of Documents. Requester should emphasize to Superintendent of Documents that this is a subscription item.

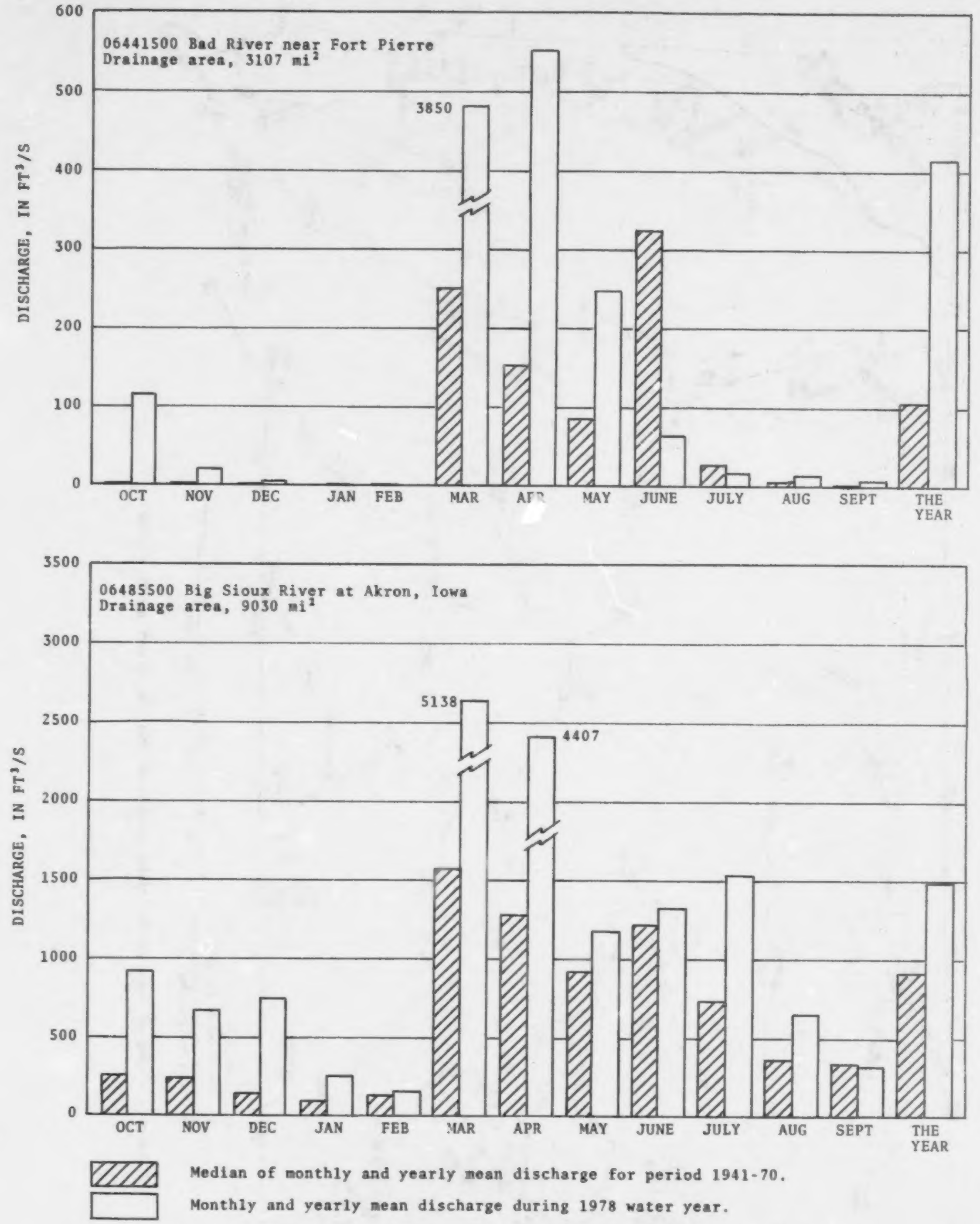
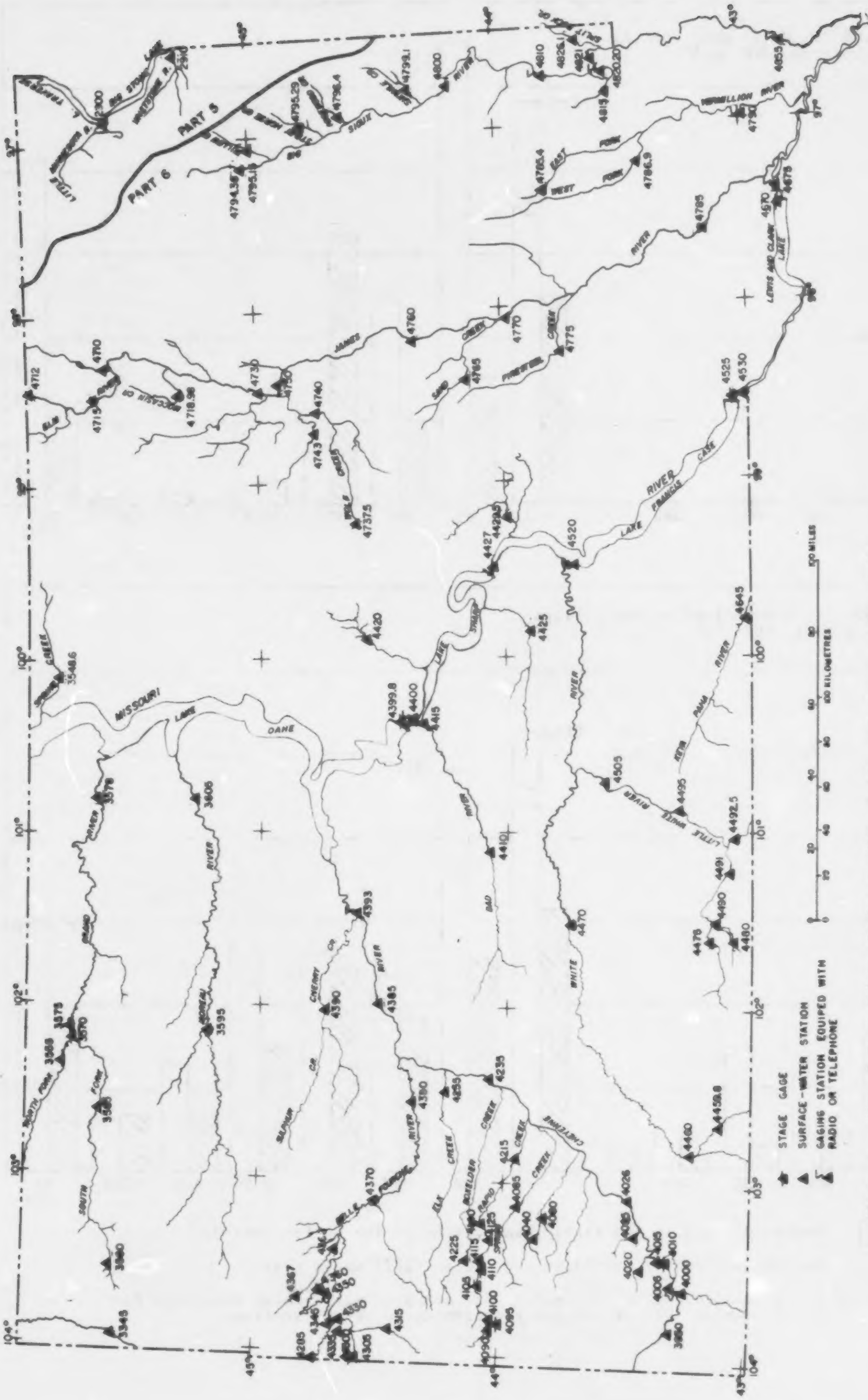


FIGURE 2.--Discharge during 1978 water year compared with median discharge for period 1941-70 for two representative gaging stations.


PART 5
PART 6
MISSOURI
LAKE OAHE
LAKE SHARPE
LAKE FRANCIS CASE
LEWIS AND CLARK LAKE
JAMES RIVER
VERMILLION RIVER
BIG SIOUX RIVER
WEST FORK
EAST FORK
SAND CREEK
FIREBEAR CREEK
MOCCASIN CR
ELM
GRAND
SOUTH FORK
NORTH FORK
MOREAU RIVER
CHERRY CR
CHEYENNE RIVER
BELLE FOURCHE RIVER
ELK CREEK
BOXELDER CREEK
RAPID CREEK
BAD RIVER
WHITE RIVER
LITTLE WHITE RIVER
KEYA PAHA RIVER
SPRING CREEK
TURTLE CREEK
104°
103°
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101°
100°
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4786.3
4785.4
4795.18
4794.35
4799.11
4800
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4110
4115
4100
4095
4090
4026
4020
4010
4006
4000
3950
3546.6
3576
3570
3575
3588
3528
3560
3545
3606
3595
2300
2310
STAGE GAGE
SURFACE-WATER STATION
GAGING STATION EQUIPED WITH RADIO OR TELEPHONE
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETRES

Figure 1. --Map of South Dakota showing location of lake and stream gaging stations

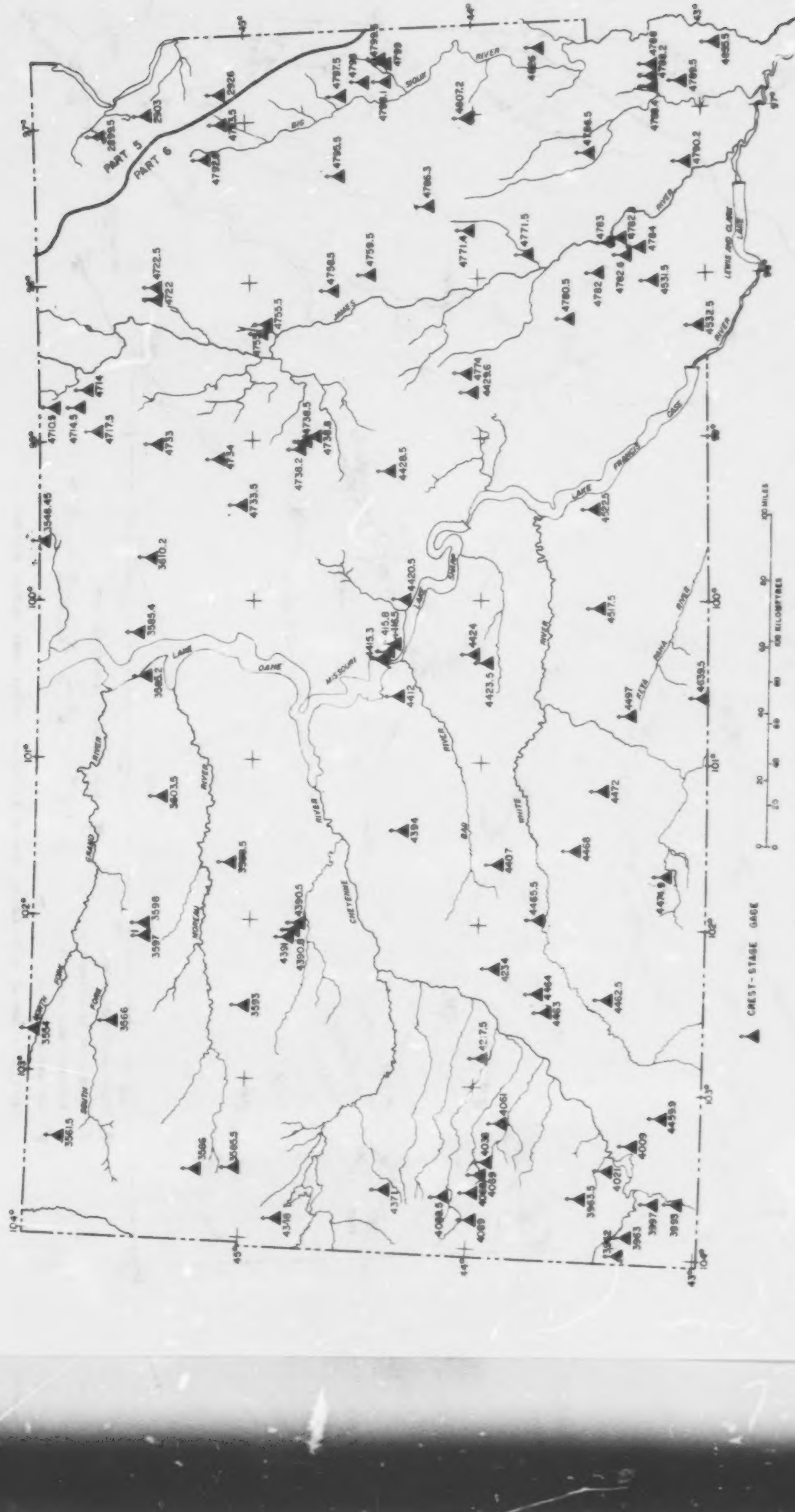
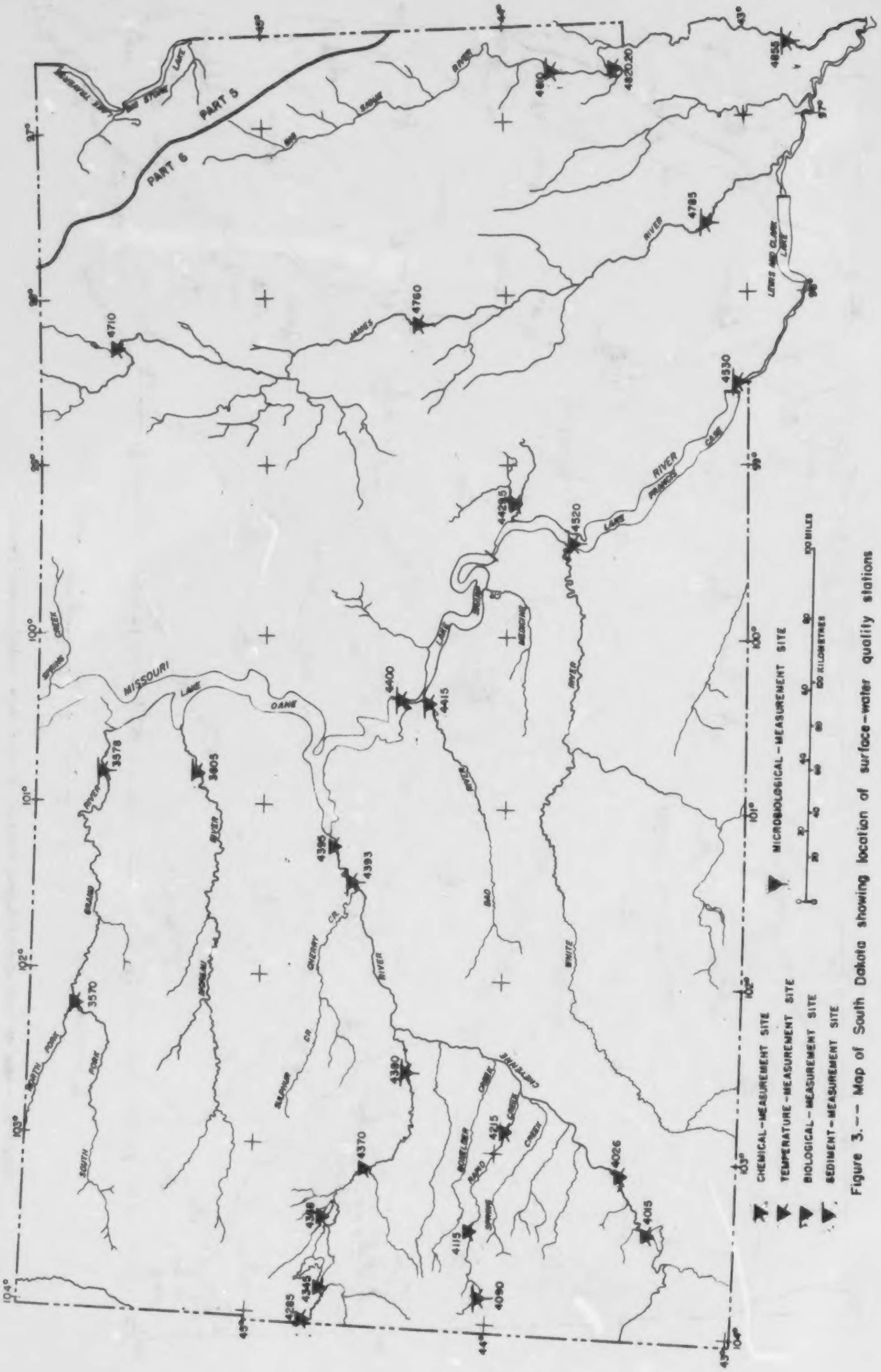

PART 5
PART 6
GRAND RIVER
MOREAU RIVER
CHEYENNE RIVER
BAD RIVER
WHITE RIVER
KEYA PAHA RIVER
LAKE OAHE
MISSOURI
LAKE SHARPE
LAKE FRANCIS CASE
LEWIS AND CLARK LAKE
JAMES
BIG SIOUX RIVER
NORTH FORK
SOUTH FORK
104°
103°
102°
101°
100°
99°
98°
97°
45°
44°
43°
CREST-STAGE GAGE
0 20 40 60 80 100 MILES
0 50 100 KILOMETRES

Figure 2.-- Map of South Dakota showing location of crest-stage partial-record stations



PART 6
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MISSOURI
LAKE OAHE
LAKE FRANCIS CASE
LEWIS AND CLARK LAKE
BIG STONE LAKE
BIG SIOUX RIVER
JAMES RIVER
GRAND RIVER
MOREAU RIVER
CHEYENNE RIVER
BAD RIVER
WHITE RIVER
NORTH FORK
SOUTH FORK
CHERRY CR.
SULPHUR CR.
BOXELDER CREEK
RAPID CREEK
SPRING CREEK
FRENCH CREEK
MEDICINE
3570
3578
3805
4370
4390
4393
4395
4400
4415
4015
4026
4090
4115
4215
4235
4285
4345
4385
4520
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4820.20
4855
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103°
102°
101°
100°
99°
98°
97°
43°
44°
45°
CHEMICAL-MEASUREMENT SITE
TEMPERATURE-MEASUREMENT SITE
BIOLOGICAL-MEASUREMENT SITE
SEDIMENT-MEASUREMENT SITE
MICROBIOLOGICAL-MEASUREMENT SITE
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETRES

Figure 3.-- Map of South Dakota showing location of surface-water quality stations

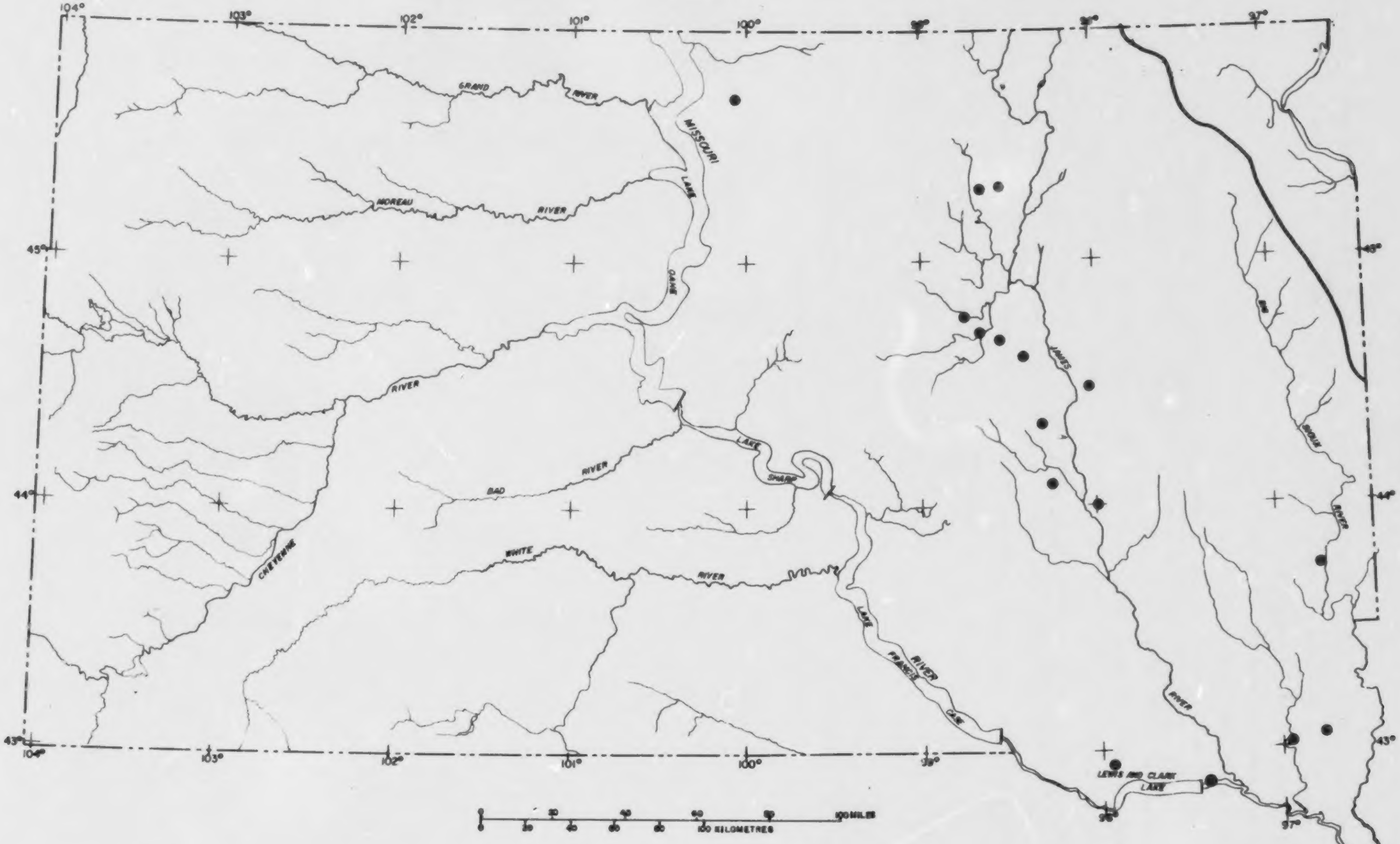
104°
103°
102°
101°
100°
99°
98°
97°
45°
44°
43°
GRAND RIVER
MOREAU RIVER
MISSOURI
LAKE OAHE
CHEYENNE RIVER
BAD RIVER
WHITE RIVER
LAKE SHARPE
LAKE FRANCIS CASE
RIVER
JAMES RIVER
BIG SIOUX RIVER
LEWIS AND CLARK LAKE
0 20 40 60 80 100 MILES
0 20 40 60 80 100 KILOMETRES

Figure 4. --Map of South Dakota, showing location of ground-water observation wells

MINNESOTA RIVER BASIN

05290000 LITTLE MINNESOTA RIVER NEAR PEEVER, SD

LOCATION.--Lat 45°36'05", long 96°52'18", in SW¼ sec.13, T.125 N., R.50 W., Roberts County, Hydrologic Unit 07020001, on right bank 2 mi (3 km) northwest of town of Browns Valley, MN, 5.3 mi (8.5 km) northeast of Peever, 7.2 mi (11.6 km) downstream from Jorgenson River, and 8 mi (13 km) upstream from Big Stone Lake.

DRAINAGE AREA.--447 mi^2 (1,158 km^2).

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1308: 1943(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,000 ft (305 m), from topographic map. Oct. 1, 1939, to Mar. 20, 1940, nonrecording gage at site 4.5 mi (7.2 km) downstream at different datum. Mar. 21 to Apr. 12, 1940, nonrecording gage at site 100 ft (30 m) downstream at present datum. Apr. 13 to Aug. 27, 1940, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are fair.

AVERAGE DISCHARGE.--39 years, 44.1 ft^3/s (1.249 m^3/s), 31,950 acre-ft/yr (39.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,730 ft^3/s (134 m^3/s) Apr. 8, 1952, gage height, 12.16 ft (3.706 m); maximum gage height, 13.35 ft (4.069 m) Mar. 25, 1943, from floodmark (backwater from ice); no flow at times in 1940, 1942, 1950, 1954, 1957, 1959, 1963, 1968, 1976, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 450 ft^3/s (12.7 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 23	0430	1860	52.7	a*10.73	3.271	Apr. 7	2315	812	23.0	5.61	1.710
Mar. 28	0145	*2140	60.6	8.90	2.713	July 1	2200	724	20.5	5.59	1.704
Apr. 1	2115	1620	45.9	7.49	2.283	July 8	c	533	15.1	b4.98	1.518

a Highwater mark (backwater from ice).
b Highwater mark in well.
c Sometime during hours 1400-1700.
Minimum discharge, 0.20 ft^3/s (0.006 m^3/s) Oct. 5, gage height, 2.09 ft (0.637 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.36	5.3	3.5	2.7	1.7	1.3	1540	192	84	417	33	8.2
2	.32	4.8	3.6	2.7	1.6	1.3	1280	166	72	559	31	7.2
3	.32	5.3	3.6	2.6	1.6	1.3	836	148	71	313	29	6.3
4	.29	5.7	3.6	2.6	1.5	1.3	665	133	68	246	28	5.5
5	.22	5.5	3.6	2.6	1.5	1.3	630	121	62	226	24	4.8
6	.32	5.2	3.6	2.6	1.4	1.3	691	110	56	208	21	4.3
7	.66	5.1	3.5	2.6	1.4	1.3	765	106	52	267	18	3.7
8	1.2	5.4	3.5	2.6	1.4	1.3	727	129	48	495	14	3.2
9	.76	6.8	3.5	2.6	1.3	1.3	613	190	48	323	13	2.8
10	.59	5.4	3.4	2.6	1.3	2.0	568	176	45	226	12	2.4
11	1.9	4.0	3.4	2.6	1.3	2.6	524	158	41	197	11	2.0
12	5.0	2.6	3.4	2.6	1.3	3.2	488	145	37	181	9.8	2.1
13	5.0	2.3	3.3	2.5	1.3	3.9	459	138	34	163	8.4	2.2
14	4.5	2.0	3.3	2.5	1.3	4.3	389	127	32	153	7.6	1.8
15	3.6	2.2	3.3	2.5	1.3	4.4	347	114	31	130	7.9	1.6
16	2.9	2.4	3.2	2.5	1.3	4.4	311	104	31	115	7.5	1.5
17	3.5	3.2	3.2	2.4	1.3	4.5	282	94	29	102	7.0	1.4
18	3.1	3.1	3.1	2.4	1.3	4.5	274	85	28	93	6.3	1.8
19	3.0	2.7	3.1	2.4	1.3	4.8	313	84	27	85	6.0	2.3
20	2.7	2.5	3.1	2.3	1.3	6.4	323	82	26	76	5.3	2.2
21	2.4	2.3	3.0	2.3	1.3	75	287	82	23	73	4.7	2.4
22	2.1	1.9	3.0	2.2	1.3	730	265	74	21	70	4.2	3.7
23	1.9	1.9	3.0	2.2	1.3	1490	258	70	20	69	5.5	3.0
24	2.0	2.0	3.0	2.1	1.3	1120	373	65	20	65	5.3	2.2
25	1.9	2.2	2.9	2.1	1.3	1110	414	64	42	58	5.0	1.7
26	1.8	2.2	2.9	2.0	1.3	1100	364	58	45	51	7.6	1.3
27	1.8	2.4	2.8	2.0	1.3	1510	314	59	66	46	7.6	1.3
28	3.0	2.7	2.8	1.9	1.3	1920	272	58	71	42	12	1.1
29	3.4	2.9	2.8	1.8	---	1290	246	59	58	39	11	.98
30	4.1	3.4	2.8	1.8	---	1090	218	142	77	37	10	.90
31	5.7	---	2.7	1.7	---	1220	---	133	---	34	9.0	---
TOTAL	70.34	105.4	99.5	73.0	38.1	12711.7	15036	3466	1365	5159	381.7	85.88
MEAN	2.27	3.51	3.21	2.35	1.36	410	501	112	45.5	166	12.3	2.86
MAX	5.7	6.8	3.6	2.7	1.7	1920	1540	192	84	559	33	8.2
MIN	.22	1.9	2.7	1.7	1.3	1.3	218	58	20	34	4.2	.90
AC-FT	140	209	197	145	76	25210	29820	6870	2710	10230	757	170

CAL YR 1977 TOTAL 2403.88 MEAN 6.59 MAX 125 MIN .00 AC-FT 4770
WTR YR 1978 TOTAL 38591.62 MEAN 106 MAX 1920 MIN .22 AC-FT 76550

05291000 WHETSTONE RIVER NEAR BIG STONE CITY, SD

LOCATION.--Lat 45°17'32", long 96°29'14", in SE¼NW¼ sec.18, T.121 N., R.46 W., Grant County, Hydrologic Unit 07020001, on right bank 20 ft (6 m) downstream from former highway bridge site, 1.5 mi (2.4 km) west of Big Stone City, and 4.5 mi (7.2 km) upstream from Big Stone Lake.

DRAINAGE AREA.--389 mi^2 (1,008 km^2).

PERIOD OF RECORD.--March 1910 to November 1912 (no winter records), and March 1931 to current year. Monthly discharge only for some periods, published in WSP 1308.

REVISED RECORDS.--WSP 895: Drainage area. WSP 1308: 1932(M), 1935(M).

GAGE.--Water-stage recorder. Datum of gage is 996.96 ft (303.873 m) adjustment of 1912. Mar. 8, 1910, to Nov. 30, 1912, nonrecording gage 2 mi (3 km) downstream at different datum. Mar. 18, 1931, to May 3, 1939, nonrecording gage, at site 20 ft (6 m) upstream at present datum. May 4, 1939, to Nov. 8, 1952, water-stage recorder at site 80 ft (24 m) downstream at present datum.

REMARKS.--Records good except those for winter periods, which are fair.

AVERAGE DISCHARGE.--47 years (water years 1932-78), 47.7 ft^3/s (1.351 m^3/s), 34,560 acre-ft/yr (42.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,870 ft^3/s (195 m^3/s) Apr. 8, 1969, gage height, 14.32 ft (4.365 m) from floodmark; no flow at times in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 26 ft (8 m) in June 1919, present site and datum, from information by local resident, discharge, 29,000 ft^3/s (821 m^3/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft^3/s (5.66 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 23	1700	*3850	109	a*11.80	3.597
Mar. 28	2115	2530	71.6	a10.10	3.078
Apr. 1	2330	2020	57.2	8.77	2.673
Apr. 8	0245	854	24.2	6.44	1.963
Apr. 20	0730	480	13.6	5.06	1.542
Apr. 25	0830	1260	35.7	7.21	2.198
May 9	1845	342	3.69	4.64	1.414
May 30	1915	975	27.6	6.94	2.115
July 2	2130	576	16.3	5.62	1.713
July 10	0130	222	6.29	3.92	1.195
Aug. 29	0100	390	11.0	4.87	1.484

a Backwater from ice.

Minimum discharge, 1.6 ft^3/s (0.045 m^3/s) Aug. 21, gage height, 1.39 ft (0.424 m).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	17	31	12	7.0	6.0	1710	212	303	172	11	68
2	6.0	51	31	12	6.9	6.0	1370	189	190	473	10	49
3	5.0	47	31	12	6.8	6.0	710	169	145	453	9.3	38
4	4.0	33	31	12	6.7	6.0	469	155	118	257	7.8	30
5	3.6	24	30	11	6.6	6.0	463	143	101	157	7.2	23
6	3.3	18	28	11	6.5	6.0	616	131	86	115	6.9	19
7	4.6	15	26	11	6.4	6.0	742	125	75	140	5.8	15
8	7.8	15	25	10	6.4	6.1	714	146	65	104	5.3	12
9	36	20	23	10	6.4	6.2	521	261	61	170	4.5	11
10	111	5.5	22	9.8	6.3	6.4	476	303	56	202	4.4	9.1
11	75	4.7	21	9.7	6.2	6.8	481	214	51	132	4.6	8.8
12	47	10	20	9.5	6.1	7.0	404	157	45	99	4.0	9.6
13	32	11	19	9.3	6.0	7.0	414	132	40	83	3.6	12
14	24	11	18	9.1	6.0	7.0	329	118	35	73	2.9	14
15	17	11	18	9.0	6.0	6.5	253	106	31	69	3.8	14
16	13	12	17	8.8	6.0	6.5	231	94	32	58	3.4	13
17	11	13	17	8.7	6.0	6.5	212	83	31	48	2.8	11
18	8.8	13	17	8.5	6.0	8.5	217	76	28	39	3.3	14
19	7.6	16	17	8.3	6.0	12	288	74	26	32	2.7	16
20	6.7	38	17	8.2	6.0	40	447	70	23	28	2.7	16
21	6.0	40	16	8.1	6.0	280	318	71	21	27	2.0	15
22	5.4	37	16	8.0	6.0	1760	245	69	19	29	2.2	15
23	5.4	35	15	7.9	6.0	3530	248	65	25	29	2.4	14
24	5.6	34	15	7.8	6.0	2230	555	63	23	26	2.5	13
25	5.7	33	14	7.7	6.0	1510	1150	63	38	24	2.4	11
26	4.9	32	14	7.6	6.0	1290	658	64	56	21	2.2	11
27	4.9	32	14	7.5	6.0	1670	381	66	52	17	185	11
28	4.8	32	14	7.4	6.0	2040	283	76	48	14	309	9.3
29	4.7	31	13	7.4	---	1900	250	114	51	13	301	8.4
30	6.1	31	13	7.3	---	1220	231	525	58	13	163	8.2
31	12	---	13	7.2	---	1370	---	654	---	12	100	---
TOTAL	497.3	722.2	616	283.8	174.3	18968.5	15386	4788	1933	3129	1177.7	518.4
MEAN	16.0	24.1	19.9	9.15	6.23	612	513	154	64.4	101	38.0	17.3
MAX	111	51	31	12	7.0	3530	1710	654	303	473	309	68
MIN	3.3	4.7	13	7.2	6.0	6.0	212	63	19	12	2.0	8.2
AC-FT	986	1430	1220	563	346	37620	30520	9500	3830	6210	2340	1030

CAL YR 1977 TOTAL 8907.6 MEAN 24.4 MAX 610 MIN 1.1 AC-FT 17670
WTR YR 1978 TOTAL 48194.2 MEAN 132 MAX 3530 MIN 2.0 AC-FT 95590

06334500 LITTLE MISSOURI RIVER AT CAMP CROOK, SD

LOCATION.--Lat 45°32'49", long 103°58'23", in SW¼ sec.2, T.18 N., R.1 E., Harding County, Hydrologic Unit 10110201, on left bank 15 ft (5 m) upstream from bridge on State Highway 20 at east edge of Camp Crook.

DRAINAGE AREA.--1,970 mi² (5,100 km²), approximately.

PERIOD OF RECORD.--September 1903 to November 1906, May 1956 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1904. WSP 1729. Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,108.98 ft (947.617 m) National Geodetic Vertical Datum of 1929. Sept. 2, 1903, to Nov. 30, 1906, nonrecording gage at site 0.5 mi (0.8 km) upstream at different datum. May 1956 to Oct. 8, 1957, nonrecording gage at site 15 ft (5 m) downstream, and Oct. 9, 1957, to Sept. 30, 1976, water-stage recorder at present site both at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Small diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 146 ft³/s (4.135 m³/s), 105,800 acre-ft/yr (130 hm³/yr); median of yearly mean discharges, 108 ft³/s (3.06 m³/s), 78,200 acre-ft/yr (96 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,420 ft³/s (267 m³/s) Mar. 24, 1978, gage height, 16.90 ft (5.151 m), present datum; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1952 reached a stage of about 18 ft (5.5 m), present datum, from local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	2200	1760	49.8	8.00	2.438	May 9	1645	4560	129	12.32	3.755
Oct. 9	2030	3390	96.0	10.74	3.274	May 24	0145	2770	78.4	9.96	3.036
Mar. 24	0245	*9420	267	*16.90	5.151	June 1	2030	2720	77.0	9.89	3.014

Minimum daily discharge, 2.5 ft³/s (0.071 m³/s) Nov. 22-24.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	102	16	9.5	8.0	4.5	4.5	3610	81	2560	114	106	29
2	789	16	9.5	7.8	4.8	4.5	2700	79	2500	114	96	27
3	1580	14	9.5	7.8	4.8	4.5	1860	77	2090	160	77	24
4	1180	11	9.0	7.8	4.8	4.5	1260	98	1600	130	68	23
5	702	9.8	8.5	7.5	4.8	5.0	972	726	1060	115	56	22
6	582	8.9	8.0	7.5	4.6	5.5	768	988	677	200	50	19
7	469	8.9	7.5	7.5	4.6	6.0	632	1320	497	175	41	16
8	2060	14	7.0	7.5	4.5	8.0	523	3080	386	150	40	14
9	3280	12	6.5	7.5	4.5	9.0	430	4360	321	130	39	14
10	2240	18	7.5	7.5	4.4	8.5	360	4340	269	110	36	14
11	1080	13	8.0	7.0	4.4	8.5	314	4220	228	95	35	14
12	828	13	8.5	7.0	4.4	8.5	272	4290	203	90	33	22
13	513	8.0	9.0	6.5	4.2	8.5	238	4400	177	80	30	34
14	314	8.0	9.0	6.0	4.2	8.5	216	3970	157	69	30	22
15	200	8.0	9.5	5.8	4.0	8.5	200	2930	142	64	30	19
16	149	6.5	9.5	5.5	3.5	10	194	1770	135	56	29	18
17	123	3.5	9.0	5.2	3.0	20	176	1020	142	54	29	18
18	105	3.5	9.0	5.0	4.0	45	172	687	157	52	28	16
19	89	3.0	8.5	4.5	4.4	100	172	566	153	53	28	16
20	78	3.0	8.0	4.8	4.6	200	153	982	219	54	27	17
21	65	3.0	8.5	5.0	5.0	600	135	1960	262	75	23	17
22	59	2.5	9.0	5.0	7.0	2000	123	2300	207	118	23	17
23	50	2.5	9.0	5.2	8.0	6540	115	2610	161	584	23	17
24	51	2.5	8.5	5.2	7.5	8560	113	2630	150	282	21	15
25	52	4.0	8.5	5.0	5.5	7930	103	1910	145	219	20	15
26	46	6.0	8.5	4.8	5.0	8210	94	1180	135	197	19	14
27	38	7.0	9.0	4.8	4.5	8300	86	824	130	161	21	14
28	33	8.0	9.0	4.6	4.5	7430	86	797	125	120	23	14
29	28	9.0	9.0	4.5	---	6430	88	1040	120	106	24	13
30	23	9.5	8.5	4.5	---	5090	86	1390	116	128	23	11
31	20	---	8.5	4.5	---	4170	---	2080	---	117	26	---
TOTAL	16928	252.1	266.5	186.8	134.0	65737.5	16251	58705	15224	4172	1154	545
MEAN	546	8.40	8.60	6.03	4.79	2121	542	1894	507	135	37.2	18.2
MAX	3280	18	9.5	8.0	8.0	8560	3610	4400	2560	584	106	34
MIN	20	2.5	6.5	4.5	3.0	4.5	86	77	116	52	19	11
AC-FT	33580	500	529	371	266	130400	32230	116400	30200	8280	2290	1080

CAL YR 1977 TOTAL 33148.03 MEAN 90.8 MAX 3280 MIN .00 AC-FT 65750
WTR YR 1978 TOTAL 179555.90 MEAN 492 MAX 8560 MIN 2.5 AC-FT 356100

06354860 SPRING CREEK NEAR HERREID, SD

LOCATION.--Lat 45°58'52", long 100°06'28", in SW¼ sec.13, T.127 N., R.77 W., Campbell County, Hydrologic Unit 10130102, on left bank 0.5 mi (0.8 km) upstream from county highway bridge, 2.4 mi (3.9 km) southwest of Herreid and 13.2 mi (21.2 km) upstream from high-water line of Lake Oahe.

DRAINAGE AREA.--440 mi² (1,140 km²), approximately, of which about 220 mi² (570 km²) is probabably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,653.80 ft (504.078 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years, 10.2 ft³/s (0.289 m³/s) 7,390 acre-ft/yr (9.11 hm³/yr); median of yearly mean discharges, 5.2 ft³/s (0.15 m³/s), 3,800 acre-ft/yr (4.7 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,340 ft³/s (37.9 m³/s) Mar. 29, 1978, gage height, 11.49 ft (3.502 m); maximum gage height, 11.60 ft (3.536 m) Mar. 17, 1966; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft³/s (1.13 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 29	1400	*1340	37.9	*11.49	3.502	June 27	1000	128	3.62	6.28	1.914
May 13	1000	49	1.39	5.05	1.539	July 1	0800	708	20.1	9.77	2.978

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	1060	12	2.2	648	2.0	.42
2	.00	.00	.00	.00	.00	.00	831	10	2.1	432	1.5	.30
3	.00	.00	.00	.00	.00	.00	488	10	1.9	255	1.2	.26
4	.00	.00	.00	.00	.00	.00	234	9.8	1.7	158	.60	.18
5	.00	.00	.00	.00	.00	.00	172	8.5	1.6	100	.38	.18
6	.00	.00	.00	.00	.00	.00	154	7.4	1.3	70	.22	.15
7	.00	.00	.00	.00	.00	.00	129	8.1	1.1	57	.22	.12
8	.00	.00	.00	.00	.00	.00	105	8.7	1.2	47	.15	.09
9	.00	.00	.00	.00	.00	.00	97	8.3	1.3	40	.15	.06
10	.00	.00	.00	.00	.00	.00	79	8.7	1.3	31	.09	.06
11	.00	.00	.00	.00	.00	.00	64	8.5	1.2	22	.03	.06
12	.00	.00	.00	.00	.00	.00	53	13	1.2	18	.00	.03
13	.00	.00	.00	.00	.00	.00	43	36	1.2	16	.00	.00
14	.00	.00	.00	.00	.00	.00	38	23	1.2	14	.10	.00
15	.00	.00	.00	.00	.00	.00	30	16	1.2	12	13	.00
16	.00	.00	.00	.00	.00	.00	28	11	1.6	10	8.5	.00
17	.00	.00	.00	.00	.00	.00	31	9.2	1.4	8.0	3.3	.00
18	.00	.00	.00	.00	.00	.00	36	11	1.2	7.0	1.7	.00
19	.00	.00	.00	.00	.00	.00	39	11	.80	6.0	1.2	.00
20	.00	.00	.00	.00	.00	.00	32	9.4	.55	7.0	.98	.00
21	.00	.00	.00	.00	.00	.00	27	8.1	1.6	8.0	2.0	.00
22	.00	.00	.00	.00	.00	.00	23	7.3	1.7	9.0	2.1	.00
23	.00	.00	.00	.00	.00	.00	19	5.9	1.2	10	2.1	.00
24	.00	.00	.00	.00	.00	1.0	22	4.7	.86	9.0	2.1	.00
25	.00	.00	.00	.00	.00	20	26	4.1	1.2	8.0	1.6	.00
26	.00	.00	.00	.00	.00	500	21	4.2	31	7.0	1.1	.00
27	.00	.00	.00	.00	.00	957	19	4.0	116	6.0	.92	.00
28	.00	.00	.00	.00	.00	1150	15	3.3	78	5.0	.86	.00
29	.00	.00	.00	.00	---	1320	14	2.9	36	4.5	.86	.00
30	.00	.00	.00	.00	---	1210	13	2.3	169	4.0	.34	.00
31	.00	---	.00	.00	---	1130	---	2.5	---	3.0	.55	---
TOTAL	.00	.00	.00	.00	.00	6288.00	3943	288.9	463.81	2031.5	49.85	1.91
MEAN	.000	.000	.000	.000	.000	203	131	9.32	15.5	65.5	1.61	.064
MAX	.00	.00	.00	.00	.00	1320	1060	36	169	648	13	.42
MIN	.00	.00	.00	.00	.00	.00	13	2.3	.55	3.0	.00	.00
AC-FT	.00	.00	.00	.00	.00	12470	7820	573	920	4030	99	3.8

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0
WTR YR 1978 TOTAL 13066.97 MEAN 35.8 MAX 1320 MIN .00 AC-FT 25920

06354860 SPRING CREEK NEAR HERREID, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--April to September 1978.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
APR 26...	1450	21	440	8.0	13.0	170	44	42	15	24
MAY 10...	1230	9.3	620	7.3	16.0	210	29	51	20	36
JUN 06...	0930	1.3	635	9.0	20.5	230	25	54	24	46
JUL 06...	1430	67	300	7.5	25.0	120	0	31	9.9	14
AUG 01...	1045	2.0	560	8.0	21.0	210	0	51	20	43

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
APR 26...	22	.8	11	150	0	120	89	4.7	.1
MAY 10...	26	1.1	12	220	0	180	100	6.5	.1
JUN 06...	29	1.3	10	210	22	210	120	6.9	.1
JUL 06...	19	.6	12	150	0	120	24	3.8	.1
AUG 01...	29	1.3	12	280	0	230	48	36	.1

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
APR 26...	13	273	.37	15.5	.01	.24	.19	.12	90
MAY 10...	10	345	.47	8.71	.05	.20	.15	.11	120
JUN 06...	6.0	393	.53	1.38	.02	.14	.14	.11	160
JUL 06...	19	189	.26	34.5	.02	.67	.49	.49	90
AUG 01...	15	364	.50	1.97	.00	.37	.36	.32	140

06355500 NORTH FORK GRAND RIVER NEAR WHITE BUTTE, SD

LOCATION.--Lat 45°47'39", long 102°21'59", in NE¼SE¼ sec.10, T.21 N., R.14 E., Perkins County, Hydrologic Unit 10130301, on right bank 1,400 ft (430 m) upstream from highway bridge and 9.8 mi (15.8 km) south of White Butte.

DRAINAGE AREA.--1,190 mi^2 (3,080 km^2), approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1947, 1950.

GAGE.--Water-stage recorder. Altitude of gage is 2,275 ft (693 m), by barometer. See WSP 1917 for history of changes prior to June 12, 1951. June 12, 1951, to Aug. 20, 1975, water-stage recorder, and Aug. 21 to Sept. 10, 1975, nonrecording gage at site 1,300 ft (400 m) downstream; Sept. 11, 1975, to Mar. 22, 1976, nonrecording gage at present site, and Mar. 23 to July 28, 1976, nonrecording gage at site 1,400 ft (430 m) downstream, all at present datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Bowman-Haley Reservoir, capacity, 93,000 acre-ft (115 hm^3), 71 mi (114 km) upstream, beginning August 1966. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 57.2 ft^3/s (1.620 m^3/s), 41,440 acre-ft/yr (51.1 hm^3/yr); median of yearly mean discharges, 33 ft^3/s (0.93 m^3/s), 23,900 acre-ft/yr (29 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,900 ft^3/s (875 m^3/s) Apr. 16, 1950, gage height, 20.0 ft (6.10 m), from floodmarks, from rating curve extended above 19,000 ft^3/s (538 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,710 ft^3/s (190 m^3/s) Mar. 28, gage height, 11.63 ft (3.545 m); maximum gage height, 12.08 ft (3.682 m) Mar. 23 (backwater from ice); minimum daily discharge, 0.18 ft^3/s (0.005 m^3/s) Sept. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13	6.7	2.7	2.2	1.5	1.8	3160	119	137	94	14	.63
2	15	6.1	2.7	2.1	1.6	1.8	2610	108	167	100	11	.56
3	15	6.4	2.7	2.1	1.6	2.0	2010	100	165	72	7.8	.56
4	15	5.9	2.6	2.0	1.6	2.1	1530	95	157	54	7.9	.50
5	14	5.6	2.6	2.0	1.7	2.5	1260	93	141	46	6.6	.50
6	14	6.3	2.5	1.8	1.7	2.7	1030	93	134	47	5.9	.45
7	23	6.2	2.5	1.8	1.7	3.0	840	103	128	46	4.7	.45
8	29	6.5	2.4	1.8	1.6	3.5	696	134	120	41	4.0	.40
9	29	5.9	2.3	1.7	1.6	3.9	590	189	113	33	2.9	.36
10	26	6.1	2.4	1.7	1.6	4.0	489	265	107	28	2.6	.36
11	21	5.7	2.8	1.7	1.6	3.9	420	231	102	26	1.8	.32
12	20	5.4	3.0	1.7	1.6	3.8	358	269	94	28	2.6	.32
13	20	5.5	3.0	1.8	1.5	3.6	314	255	89	27	3.3	.28
14	23	6.1	3.0	1.8	1.5	3.6	295	234	84	25	3.5	.28
15	21	6.1	3.0	1.7	1.5	3.6	256	211	82	20	4.7	.24
16	19	5.6	2.9	1.6	1.5	3.6	233	185	79	16	5.2	.24
17	16	5.3	3.0	1.5	1.5	4.0	219	166	74	16	5.6	.21
18	13	4.5	3.0	1.5	1.6	5.0	226	154	69	18	5.4	.18
19	12	5.1	2.9	1.6	1.8	6.0	231	147	64	27	4.6	.46
20	12	5.5	3.0	1.8	2.0	10	222	134	60	24	4.0	.50
21	9.9	6.2	3.0	1.8	2.1	50	207	127	64	26	3.5	.40
22	8.8	3.0	2.9	1.7	2.2	300	210	118	63	27	3.5	.40
23	8.4	2.8	2.8	1.6	2.2	800	239	112	64	30	3.5	.40
24	7.9	2.4	2.7	1.5	2.1	1500	226	110	55	32	2.6	.40
25	7.6	2.3	2.7	1.5	2.0	1300	203	111	68	31	1.5	1.0
26	7.2	2.5	2.6	1.5	2.0	2500	182	103	216	29	1.2	5.1
27	7.2	2.7	2.5	1.5	1.8	4740	156	92	235	31	.88	3.8
28	6.8	2.8	2.5	1.5	1.8	6030	143	89	192	26	.88	3.7
29	6.9	2.8	2.4	1.5	---	5240	133	83	128	21	.71	3.5
30	6.7	2.8	2.3	1.5	---	3810	127	86	100	18	.71	3.5
31	6.8	---	2.3	1.5	---	3550	---	92	---	14	.71	---
TOTAL	454.2	146.8	83.7	53.0	48.5	29894.4	18815	4408	3351	1073	127.79	30.00
MEAN	14.7	4.89	2.70	1.71	1.73	964	627	142	112	34.6	4.12	1.00
MAX	29	6.7	3.0	2.2	2.2	6030	3160	269	235	100	14	5.1
MIN	6.7	2.3	2.3	1.5	1.5	1.8	127	83	55	14	.71	.18
AC-FT	901	291	166	105	96	59300	37320	8740	6650	2130	253	60

CAL YR 1977 TOTAL 5226.43 MEAN 14.3 MAX 1090 MIN .00 AC-FT 10370
WTR YR 1978 TOTAL 58485.39 MEAN 160 MAX 6030 MIN .18 AC-FT 116000

06356000 SOUTH FORK GRAND RIVER AT BUFFALO, SD

LOCATION.--Lat 45°34'34", long 103°32'38", in SW¼ sec.29, T.19 N., R.5 E., Harding County, Hydrologic Unit 10130302, on right bank at downstream side of bridge on U.S. Highway 85, 0.3 mi (0.5 km) south of Buffalo.

DRAINAGE AREA.--148 mi² (383 km²).

PERIOD OF RECORD.--August 1955 to current year.

REVISED RECORDS.--WSP 1917: 1956-57. WRD SD-76-1: 1974(M), 1975.

GAGE.--Water-stage recorder. Datum of gage is 2,839.60 ft (865.510 m) National Geodetic Vertical Datum of 1929. Prior to May 5, 1970, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years, 8.77 ft³/s (0.248 m³/s), 6,350 acre-ft/yr (7.83 hm³/yr); median of yearly mean discharges, 6.9 ft³/s (0.20 m³/s), 5,000 acre-ft/yr (6.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,780 ft³/s (78.7 m³/s) June 14, 1963, gage height, 9.01 ft (2.746 m), from rating curve extended above 550 ft³/s (15.6 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1956-58, 1960, 1962, 1965, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1908 reached a stage of 15.4 ft (4.69 m), from information by South Dakota Department of Transportation.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 1	1700	710	20.1	6.59	2.009	May 12	0530	332	9.40	5.49	1.673
Oct. 7	1630	730	20.7	6.63	2.021	May 30	0800	*1400	39.6	7.75	2. 62
Mar. 21	unknown	ice jam		*8.29	2.527	July 1	1045	204	5.78	4.97	1.
Mar. 26	2400	602	17.0	6.77	2.063	July 22	0930	695	19.7	6.51	1 4
May 4	1915	370	10.5	5.61	1.710						

Minimum daily discharge, 0.30 ft³/s (0.008 m³/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	216	3.0	2.8	1.4	2.8	1.8	68	6.4	26	43	5.3	2.4
2	46	2.8	2.6	1.6	2.6	1.7	40	4.8	18	10	5.7	2.4
3	12	2.4	2.8	2.0	2.4	1.7	40	5.1	13	4.7	3.0	2.2
4	3.6	2.3	2.6	2.2	2.4	1.7	35	132	10	3.5	3.8	2.2
5	3.2	2.5	2.0	2.2	2.2	1.7	30	52	7.6	2.9	3.0	2.4
6	3.0	2.7	1.7	2.2	2.4	1.8	22	12	6.9	8.8	2.2	1.9
7	168	2.6	1.5	2.0	2.2	1.8	16	84	9.5	12	2.2	1.8
8	77	2.6	1.6	2.0	2.6	1.9	13	178	5.4	9.1	2.4	1.7
9	12	2.5	1.4	2.0	2.6	2.2	14	88	4.9	3.7	2.4	1.6
10	4.8	2.5	1.2	1.8	2.6	2.4	11	31	4.3	3.1	2.0	1.8
11	3.3	2.5	1.2	2.0	2.4	2.6	8.1	26	4.1	2.7	2.1	2.4
12	3.1	2.5	2.0	2.4	2.8	2.8	11	101	4.0	2.8	2.1	8.4
13	3.3	2.5	2.5	2.4	2.6	3.1	7.2	22	3.9	2.6	2.1	4.3
14	3.2	2.5	2.8	2.4	2.6	3.3	4.2	14	3.7	2.6	2.1	4.3
15	3.2	2.6	2.8	2.4	2.6	3.5	6.4	9.7	3.8	2.4	2.1	4.3
16	3.1	2.4	2.8	2.4	2.6	4.5	6.4	7.5	6.1	2.2	2.1	3.5
17	3.0	2.4	2.8	2.6	2.6	5.5	6.4	6.6	10	2.4	2.2	3.4
18	3.0	2.4	2.6	2.5	2.4	9.0	43	11	12	3.0	2.2	3.6
19	2.9	2.4	2.4	2.5	2.4	50	42	29	7.3	62	2.2	3.7
20	2.7	1.8	2.2	2.5	2.4	350	15	16	3.5	67	11	3.4
21	2.8	.30	2.4	2.6	2.4	750	9.7	9.0	2.7	278	17	3.3
22	2.8	1.0	2.8	2.6	2.4	400	8.6	6.6	2.7	366	7.1	2.9
23	2.8	1.5	2.6	2.6	2.2	170	8.8	4.8	3.0	43	2.6	2.7
24	2.8	2.0	2.4	2.6	2.4	71	7.2	3.8	2.8	14	2.1	2.4
25	2.7	2.2	2.4	2.6	2.6	325	5.3	3.4	2.9	5.7	2.1	2.4
26	2.7	2.5	2.2	2.6	2.4	439	4.6	3.4	2.7	3.8	2.1	2.4
27	2.9	2.5	2.2	2.8	2.3	408	4.2	5.7	2.7	2.6	18	2.7
28	3.0	2.5	2.6	2.8	2.1	235	4.6	11	2.7	2.4	4.6	2.5
29	3.0	2.8	2.4	2.7	---	159	5.5	71	2.4	1.9	5.9	2.5
30	3.0	2.8	2.2	2.8	---	111	7.0	740	2.9	5.0	3.6	2.4
31	2.9	---	2.0	2.8	---	113	---	80	---	9.6	2.4	---
TOTAL	607.8	70.00	70.5	73.0	69.0	3634.0	504.2	1774.8	191.5	982.5	129.7	87.9
MEAN	19.6	2.33	2.27	2.35	2.46	117	16.8	57.3	6.38	31.7	4.18	2.93
MAX	216	3.0	2.8	2.8	2.8	750	68	740	26	365	18	8.4
MIN	2.7	.30	1.2	1.4	2.1	1.7	4.2	3.4	2.4	1.9	2.0	1.6
AC-FT	1210	139	140	145	137	7210	1000	3520	380	1950	257	174

CAL YR 1977 TOTAL 3005.30 MEAN 8.23 MAX 398 MIN .30 AC-FT 5960
WTR YR 1978 TOTAL 8194.90 MEAN 22.5 MAX 750 MIN .30 AC-FT 16250

06356500 SOUTH FORK GRAND RIVER NEAR CASH, SD

LOCATION.--Lat 45°38'56", long 102°38'27", in SW¼SW¼ sec.34, T.20 N., R.12 E., Perkins County, Hydrologic Unit 10130302, on left bank at downstream side of highway bridge, 1.0 mi (1.6 km) upstream from Little Nasty Creek, 4.0 mi (6.4 km) north of Cash, 10 mi (16 km) south of Lodgepole, 12 mi (19 km) northwest of Bison, and 16 mi (26 km) downstream from Big Nasty Creek.

DRAINAGE AREA.--1,350 mi^2 (3,500 km^2), approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,416 ft (736 m), by barometer. Prior to Oct. 25, 1946, nonrecording gage, and Oct. 25, 1946, to May 16, 1966, water-stage recorder, at site 500 ft (152 m) upstream. May 17, 1966, to May 2, 1968, nonrecording gage, at present site, all at same datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 56.3 ft^3/s (1.594 m^3/s), 40,790 acre-ft/yr (50.3 hm^3/yr); median of yearly mean discharges, 36 ft^3/s (1.02 m^3/s), 26,100 acre-ft/yr (32 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 27,000 ft^3/s (765 m^3/s) Apr. 15, 1950, gage height, 15.40 ft (4.694 m), from rating curve extended above 14,000 ft^3/s (396 m^3/s) on basis of slope-area measurement of peak flow; no flow at times.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 3	0030	883	25.0	4.06	1.237
Oct. 9	0915	766	21.7	3.84	1.170
Mar. 27	0630	*3530	100	*8.08	2.463
May 9	0630	690	19.5	4.11	1.253
May 31	1215	1330	37.7	5.19	1.582
June 27	0345	700	19.8	4.28	1.305
June 30	1245	1070	30.3	4.93	1.503

Minimum daily discharge, 1.0 ft^3/s (0.03 m^3/s) Nov. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	11	3.2	2.8	3.2	2.8	971	72	384	401	14	28
2	544	9.4	3.2	3.5	3.5	2.6	786	69	210	187	31	19
3	717	9.1	3.0	3.5	3.3	2.5	579	59	123	137	22	15
4	217	8.8	3.0	3.7	3.0	2.5	510	54	88	72	15	13
5	93	8.9	2.7	3.8	3.0	2.5	453	58	55	36	14	12
6	52	8.7	2.5	3.8	3.0	2.7	401	202	37	20	12	14
7	51	8.2	2.3	3.7	3.0	3.0	340	137	31	15	12	18
8	255	8.5	2.0	3.5	3.1	3.0	274	272	28	15	9.9	18
9	609	7.2	1.5	3.5	3.1	3.2	211	613	31	63	8.9	18
10	254	7.0	1.6	3.5	3.0	3.5	162	396	24	40	7.5	17
11	105	7.0	1.8	4.0	3.0	3.5	135	276	20	21	7.7	18
12	59	7.5	1.8	4.2	3.0	3.4	128	287	16	11	8.6	21
13	39	8.0	1.8	4.0	2.7	3.2	106	384	14	5.7	8.8	20
14	30	8.0	2.0	3.5	2.5	3.0	95	242	13	4.2	8.5	20
15	25	7.5	3.0	3.0	2.5	3.0	77	156	10	4.5	7.4	30
16	23	7.5	3.5	3.0	2.5	3.5	76	108	10	3.8	7.5	23
17	20	6.8	3.5	3.0	2.7	4.0	88	77	8.5	3.1	8.1	21
18	18	6.0	3.4	3.0	3.0	5.0	111	58	8.9	2.8	9.0	25
19	16	5.5	3.2	3.0	3.0	20	166	52	9.9	16	9.0	26
20	16	5.0	3.0	3.0	3.2	100	278	54	10	96	9.1	26
21	15	4.0	3.0	3.2	3.5	1000	224	94	9.3	155	9.4	27
22	14	3.1	3.3	3.5	3.5	2200	182	65	7.5	352	9.6	25
23	14	1.0	3.3	3.5	3.5	2000	166	48	5.9	409	10	22
24	13	1.5	3.0	3.5	3.4	1860	142	38	4.5	412	11	14
25	13	2.5	3.0	3.3	3.4	2040	112	38	4.8	191	11	13
26	13	3.0	2.8	3.2	3.3	2670	88	35	230	89	10	13
27	13	3.2	2.8	3.2	3.1	3240	73	28	541	45	10	11
28	12	3.4	3.0	3.2	3.0	2920	70	23	238	29	56	12
29	11	3.5	3.0	3.2	---	2000	70	23	210	20	111	12
30	12	3.4	2.8	3.2	---	1510	70	48	596	16	68	9.6
31	11	---	2.5	3.2	---	1210	---	928	---	14	37	---
TOTAL	3320	184.2	84.5	105.2	86.0	22826.9	7144	4994	2978.3	2886.1	573.0	560.6
MEAN	107	6.14	2.73	3.39	3.07	736	238	161	99.3	93.1	18.5	18.7
MAX	717	11	3.5	4.2	3.5	3240	971	928	596	412	111	30
MIN	11	1.0	1.5	2.8	2.5	2.5	70	23	4.5	2.8	7.4	9.6
AC-FT	6590	365	168	209	171	45280	14170	9910	5910	5720	1140	1110

CAL YR 1977 TOTAL 14477.60 MEAN 39.7 MAX 848 MIN .50 AC-FT 28720
WTR YR 1978 TOTAL 45742.80 MEAN 125 MAX 3240 MIN 1.0 AC-FT 90730

06357000 SHADEHILL RESERVOIR AT SHADEHILL, SD

LOCATION.--Lat 45°45'12", long 102°12'12", in E½ sec.25, T.21 N., R.15 E., Perkins County, Hydrologic Unit 10130302, at dam on Grand River, 1.3 mi (2.1 km) southwest of Shadehill.

DRAINAGE AREA.--3,120 m^2 (8,080 km^2), approximately.

PERIOD OF RECORD.--June 1950 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Apr. 3, 1952, occasional elevations obtained by level circuits and Apr. 3, 1952, to Apr. 28, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by earthfill dam. Storage began July 1, 1950; dam completed August 1951. Conservation storage, 81,443 acre-ft (100 hm^3) between elevations 2,250.8 ft (686.04 m), invert of canal and river outlet, and elevation 2,272.0 ft (692.51 m), crest of morning-glory spillway. Dead storage, 58,231 acre-ft (71.8 hm^3) below elevation 2,250.8 ft (686.04 m). Flood control, 217,708 acre-ft (268 hm^3) between elevations 2,272.0 ft (692.51 m) and 2,302.0 ft (701.65 m), crest of emergency spillway. Surcharge, 111,203 acre-ft (137 hm^3) at elevation 2,312.0 ft (704.70 m), maximum pool elevation. Total reservoir capacity is 468,585 acre-ft (578 hm^3) at elevation 2,312.0 ft (704.70 m). The reservoir provides flood control and water for irrigation purposes. Figures given herein represent usable contents above elevation 2,250.8 ft (686.04 m). Prior to Oct. 1, 1968, reservoir contents published as total contents and included dead storage.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum usable contents observed, 259,900 acre-ft (320 hm^3) Apr. 10, 1952, elevation, 2,297.86 ft (700.388 m); minimum usable observed since first filling to spillway level, 25,950 acre-ft (32.0 hm^3) Mar. 17, 1962, elevation, 2,258.90 ft (688.51 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 139,791 acre-ft (172 hm^3) Apr. 1, elevation, 2,282.42 ft (695.862 m); minimum, 57,498 acre-ft (70.9 hm^3) Mar. 18, elevation, 2,266.82 ft (690.937 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	2268.31	64119	
Oct. 31	2269.31	68684	+4565
Nov. 30	2269.37	68961	+277
Dec. 31	2268.54	65161	-3800
CAL YR 1977			+3200
Jan. 31	2267.74	61559	-3602
Feb. 28	2267.06	58550	-3009
Mar. 31	2282.22	138503	+79953
Apr. 30	2273.03	86515	-51988
May 31	2272.05	81687	-4828
June 30	2272.25	82665	+978
July 31	2271.83	80615	-2050
Aug. 31	2270.50	74239	-6376
Sept. 30	2269.06	67533	-6706
WTR YR 1978			+3414

06357500 GRAND RIVER AT SHADEHILL, SD

LOCATION.--Lat 45°45'25", long 102°11'41", in NW¼NW¼ sec.30, T.21 N., R.16 E., Perkins County, Hydrologic Unit 10130303, on left bank 0.2 mi (0.3 km) downstream from Shadehill Dam, 1.1 mi (1.8 km) southwest of Shadehill, and 12.0 mi (19.3 km) southwest of Lemmon.

DRAINAGE AREA.--3,120 mi^2 (8,080 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1943 to current year. Records for July 1904 to October 1906 collected at site 4 mi (6 km) upstream and published as "at Seim" in WSP 130, 172, and 208 have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1279: 1943(M). See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,192.48 ft (668.268 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 31, 1947, nonrecording gage, and Aug. 31, 1947, to Oct. 24, 1958, water-stage recorder at site 0.8 mi (1.3 km) downstream at datum 6.02 ft (1.835 m) lower.

REMARKS.--Records good. Flow completely regulated by Shadehill Reservoir since July 1, 1950. (See station 06357000.)

AVERAGE DISCHARGE.--35 years, 120 ft^3/s (3.398 m^3/s), 86,940 acre-ft/yr (107 hm^3/yr); median of yearly mean discharges, 66 ft^3/s (1.87 m^3/s), 47,800 acre-ft/yr (59 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,000 ft^3/s (1,640 m^3/s) Apr. 16, 1950, gage height, 21.0 ft (6.40 m), from floodmarks upstream from bridge; 19.06 ft (5.809 m), from floodmark in gage well, unreliable, site and datum then in use; no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 4,190 ft^3/s (119 m^3/s) Apr. 1; maximum gage height, 8.63 ft (2.630 m) Apr. 1, 2; no flow Oct. 20 to Dec. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	38	.00	.00	85	59	52	4190	368	299	442	112	92
2	38	.00	.00	85	58	52	4180	341	334	485	111	92
3	39	.00	.00	83	58	38	4130	431	336	465	107	92
4	39	.00	.00	83	56	26	4080	470	330	432	106	92
5	39	.00	.00	83	56	26	4020	426	318	402	103	92
6	40	.00	.00	83	55	26	3950	389	310	370	103	92
7	41	.00	.00	81	55	26	3910	386	300	341	103	92
8	40	.00	.00	81	54	26	3830	390	285	306	103	92
9	40	.00	.00	81	53	26	3720	395	269	272	102	92
10	40	.00	.00	81	53	25	3260	475	256	249	102	92
11	41	.00	.00	78	51	25	2500	525	254	231	102	92
12	41	.00	.00	76	51	25	1950	571	237	201	101	91
13	41	.00	.00	75	50	25	1530	581	226	157	101	91
14	24	.00	37	75	50	25	1210	597	167	147	101	92
15	.43	.00	111	74	50	26	1020	581	132	136	99	91
16	.10	.00	101	72	50	26	871	548	149	127	99	92
17	1.1	.00	99	72	50	26	764	511	147	122	98	92
18	1.5	.00	93	69	50	25	719	472	142	114	98	90
19	.16	.00	92	69	50	26	661	449	148	117	98	76
20	.00	.00	90	68	50	26	620	417	134	110	97	87
21	.00	.00	90	68	50	26	596	387	131	112	96	87
22	.00	.00	92	66	51	27	595	365	130	113	97	87
23	.00	.00	92	66	51	57	608	342	130	118	96	87
24	.00	.00	92	64	51	638	580	320	132	129	96	87
25	.00	.00	92	63	51	1720	548	304	137	142	96	87
26	.00	.00	90	63	51	2620	508	287	148	144	96	87
27	.00	.00	88	62	51	3740	469	267	152	139	96	87
28	.00	.00	88	62	51	4000	445	252	202	136	95	87
29	.00	.00	88	60	---	4100	420	237	254	126	95	87
30	.00	.00	86	60	---	4140	395	243	329	120	95	85
31	.00	---	86	59	---	4160	---	239	---	114	95	---
TOTAL	543.29	.00	1607.00	2247	1466	25806	56279	12566	6518	6619	3099	2682
MEAN	17.5	.000	51.8	72.5	52.4	832	1876	405	217	214	100	89.4
MAX	41	.00	111	85	59	4160	4190	597	336	485	112	92
MIN	.00	.00	.00	59	50	25	395	237	130	110	95	76
AC-FT	1080	.00	3190	4460	2910	51190	111600	24920	12930	13130	6150	5320

CAL YR 1977 TOTAL 9855.29 MEAN 27.0 MAX 111 MIN .00 AC-FT 19550
WTR YR 1978 TOTAL 119432.29 MEAN 327 MAX 4190 MIN .00 AC-FT 236900

06357500 GRAND RIVER AT SHADEHILL, SD--Continued

WATER-QUALITY RECORDS

LOCATION.--Prior to October 1977, samples collected at site 0.2 mi (0.3 km) upstream.

PERIOD OF RECORD.--Water years 1952, 1954-68, 1977 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: March 1953 to September 1965.
WATER TEMPERATURES: August 1954 to September 1959, October 1966 to September 1968.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,780 micromhos Mar. 1, 2, 14, 16, 19, 1962; minimum daily, 427 micromhos Apr. 27, 1955.
WATER TEMPERATURES: Maximum, 26.0°C Aug. 3, 1955; minimum, 0.0°C on many days during winter periods.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT 19...	1200	.11	1900	9.0	14.5	230	0	39	31	370
JAN 11...	1110	81	1950	8.2	1.0	230	0	41	32	380
MAY 03...	1545	522	1300	8.5	9.5	170	0	35	21	210
JUL 27...	0830	141	1340	8.8	22.5	220	0	40	28	240
AUG 23...	0845	96	1380	8.6	20.0	240	0	45	31	250

DATE	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
OCT 19...	77	11	8.3	500	12	430	600	15	.6
JAN 11...	77	11	9.8	450	0	370	640	7.8	.5
MAY 03...	71	6.9	8.7	280	6	240	370	4.9	.3
JUL 27...	70	7.1	8.1	280	7	240	460	5.3	.3
AUG 23...	68	7.0	8.6	290	9	250	480	5.5	.3

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)
OCT 19...	4.1	1330	1.81	.40	.04	.01	.00	.01	560
JAN 11...	5.9	1340	1.82	293	.23	.03	.02	.01	490
MAY 03...	5.2	801	1.09	1130	.29	.05	.01	.01	310
JUL 27...	5.1	933	1.27	355	.26	.02	.00	.01	360
AUG 23...	6.[illegible]	980	1.33	254	.29	.02	.01	.02	370

06357800 GRAND RIVER AT LITTLE EAGLE, SD

LOCATION.--Lat 45°39'28", long 100°49'04", in NE¼NE¼ sec.32, T.20 N., R.27 E., Corson County, Hydrologic Unit 10130303, on left bank at downstream side of bridge on State Highway 63, 1.3 mi (2.1 km) southwest of Little Eagle and 4.7 mi (7.6 km) downstream from Little Oak Creek.

DRAINAGE AREA.--5,370 mi² (13,910 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1958 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,628.63 ft (496.406 m) National Geodetic Vertical Datum of 1929. Prior to May 12, 1959, nonrecording gage, and May 12, 1959, to Aug. 11, 1970, water-stage recorder at site 0.6 mi (1.0 km) downstream at datum 2.00 ft (0.610 m) lower.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Shadehill Reservoir 144 mi (232 km) upstream. (See station 06357000.)

AVERAGE DISCHARGE.--20 years, 247 ft³/s (6.995 m³/s), 179,100 acre-ft/yr (221 hm³/yr); median of yearly mean discharges, 210 ft³/s (5.95 m³/s), 152,000 acre-ft/yr (190 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 ft³/s (538 m³/s) Mar. 23, 1978; maximum gage height, 21.76 ft (6.632 m) Mar. 18, 1966, from floodmarks, ice jam, site and datum then in use; no flow at times in 1958-62, 1969, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,000 ft³/s (538 m³/s) Mar. 23; maximum gage height, 18.41 ft (5.611 m) Mar. 23 (backwater from ice); no flow Nov. 22 to Mar. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	122	18	.00	.00	.00	.0	7840	1540	376	533	117	80
2	185	16	.00	.00	.00	.0	6640	1120	376	505	114	78
3	855	16	.00	.00	.00	.0	5510	887	367	586	112	80
4	531	15	.00	.00	.00	.0	5120	745	394	550	110	80
5	264	14	.00	.00	.00	.0	5100	719	398	467	107	78
6	182	13	.00	.00	.00	.0	5120	852	389	422	107	74
7	180	13	.00	.00	.00	.0	5040	852	398	398	107	74
8	205	13	.00	.00	.00	.0	4690	1160	412	385	112	74
9	765	12	.00	.00	.00	.0	4350	1640	394	363	110	70
10	555	12	.00	.00	.00	.0	4190	1150	358	325	102	70
11	332	12	.00	.00	.00	.0	4050	1030	333	296	93	70
12	217	11	.00	.00	.00	.0	3370	1470	316	277	187	80
13	159	11	.00	.00	.00	.0	2730	2520	300	252	187	100
14	122	10	.00	.00	.00	.0	2230	1990	289	241	192	134
15	101	10	.00	.00	.00	3.0	1920	1380	308	229	277	124
16	86	9.0	.00	.00	.00	10	1690	1160	558	195	599	100
17	74	8.0	.00	.00	.00	25	1680	965	593	175	367	93
18	67	6.0	.00	.00	.00	80	1590	845	412	164	198	93
19	57	4.0	.00	.00	.00	300	2280	784	281	164	178	96
20	45	2.0	.00	.00	.00	700	2880	936	232	160	158	100
21	38	.50	.00	.00	.00	1500	1860	901	213	170	142	112
22	32	.00	.00	.00	.00	3000	1560	680	198	216	122	107
23	30	.00	.00	.00	.00	13000	1730	586	178	277	117	91
24	26	.00	.00	.00	.00	12000	2670	527	207	269	98	89
25	25	.00	.00	.00	.00	9500	2200	494	427	235	93	89
26	22	.00	.00	.00	.00	8500	1780	467	1620	198	91	91
27	22	.00	.00	.00	.00	14200	1500	432	1200	184	91	91
28	19	.00	.00	.00	.00	16800	1270	412	533	187	89	87
29	19	.00	.00	.00	---	13300	1180	389	472	190	85	87
30	18	.00	.00	.00	---	10200	1730	380	533	175	85	87
31	17	---	.00	.00	---	9080	---	363	---	147	100	---
TOTAL	5372	225.50	.00	.00	.00	112198.0	95500	29376	13065	8935	4647	2679
MEAN	173	7.52	.000	.000	.000	3619	3183	948	436	288	150	89.3
MAX	855	18	.00	.00	.00	16800	7840	2520	1620	586	599	134
MIN	17	.00	.00	.00	.00	.00	1180	363	178	147	85	70
AC-FT	10660	447	.00	.00	.00	222500	189400	58270	25910	17720	9220	5310

CAL YR 1977 TOTAL 24880.60 MEAN 68.2 MAX 1990 MIN .00 AC-FT 49350
WTR YR 1978 TOTAL 271997.50 MEAN 745 MAX 16800 MIN .00 AC-FT 539500

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued
(National stream-quality accounting network station)
(National pesticide water-monitoring network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1975 to September 1976, October 1977 to September 1978.
WATER TEMPERATURES: October 1975 to current year.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976 (discontinued).

INSTRUMENTATION.--Water-quality monitor since June 20, 1977.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Dec. 4, 7-9, 1976; minimum daily, 290 micromhos Feb. 7, 1976.
WATER TEMPERATURES: Maximum daily, 33.0°C Aug. 26, 1976; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 19,000 mg/L May 2, 1972; minimum daily mean, 0 mg/L Jan. 10, 11, Feb. 5-10, 1975.
SEDIMENT LOADS: Maximum daily, 259,000 tons (235,000 tonnes) Mar. 12, 1972; minimum daily, 0 ton (0 tonne) Jan. 10, 11, Feb. 5-10, 1975.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,080 micromhos Jan. 11; minimum daily, 400 micromhos Mar. 23, 26, 27.
WATER TEMPERATURES: Maximum daily, 29.0°C July 4, 7-11, Aug. 4, 7-9, 11; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 25...	1430	24	1570	9.2	10.5	40	--	11.4	K10	K20	200
MAR 28...	1530	16800	415	7.9	2.0	950	--	10.4	K60	7200	62
APR 25...	1130	2330	660	7.6	8.0	1400	--	10.0	490	2950	87
MAY 16...	1045	1100	1060	8.1	16.0	240	--	6.9	790	70	170
JUN 05...	1115	407	1410	8.2	19.5	80	--	8.0	160	K110	240
JUL 12...	1130	284	1540	8.7	25.0	--	120	9.2	440	340	280
AUG 10...	1000	98	1660	8.6	22.0	--	22	7.5	120	60	250
SEP 14...	1145	133	1680	8.3	16.0	--	42	9.5	3500	5200	230

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 25...	0	49	20	270	73	8.2	8.0	360	0	300
MAR 28...	0	16	5.3	57	65	3.2	3.9	94	0	77
APR 25...	0	20	9.0	100	70	4.7	4.7	160	0	130
MAY 16...	0	40	18	170	67	5.6	7.2	230	0	190
JUN 05...	0	50	28	250	68	7.0	8.4	340	0	280
JUL 12...	15	59	31	260	66	6.8	9.1	--	--	260
AUG 10...	0	50	30	310	72	8.6	10	--	--	290
SEP 14...	0	46	29	290	72	8.2	9.5	--	--	280

K Non-ideal colony count.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 25...	470	9.4	.3	6.3	1010	1010	1.37	65.7	.01	--
MAR 28...	94	2.5	.1	4.2	230	229	.31	10400	.57	4.4
APR 25...	160	3.6	.2	6.7	402	383	.55	2530	.40	2.2
MAY 16...	330	5.4	.2	6.8	663	691	.90	1970	.12	1.3
JUN 05...	460	8.2	.3	4.9	959	977	1.30	1050	.09	.74
JUL 12...	490	8.2	.3	5.7	1010	1020	1.37	774	.01	1.3
AUG 10...	570	11	.4	6.0	1160	1160	1.58	308	.04	.54
SEP 14...	560	9.1	.4	4.8	1140	1120	1.55	409	.02	1.0

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)
OCT 25...	--	.01	--	--	--	--	--	--	.01	.05
MAR 28...	4.3	.14	.68	3.7	.09	.48	5.0	22	.03	1.3
APR 25...	2.2	.02	3.2	.00	--	--	2.6	12	.03	.43
MAY 16...	1.3	.03	.96	.34	--	--	1.4	6.3	.01	.22
JUN 05...	.73	.01	.55	.19	--	--	.83	3.7	.00	.10
JUL 12...	1.3	.03	.32	.98	--	--	1.3	5.8	.01	.11
AUG 10...	.52	.02	.49	.05	--	--	.58	2.6	.00	.03
SEP 14...	.96	.04	.54	.46	--	--	1.0	4.5	.00	.06

DATE	TIME	CARBON, ORGANIC DIS- SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS- PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO- PLANK- TON, TOTAL (CELLS PER ML) (60050)	PERI- PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI- PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT DIS- CHARGE, SUS- PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 25...	1430	--	--	7.9	--	--	--	192	12	93
MAR 28...	1530	--	--	33	860	--	--	3410	155000	76
APR 25...	1130	--	--	24	--	--	--	3060	19300	52
MAY 16...	1045	--	--	14	1700	--	--	681	2020	80
JUN 05...	1115	--	--	11	4800	2.83	2.05	267	293	90
AUG 10...	1000	--	--	7.1	--	--	--	115	30	95
SEP 14...	1145	--	--	9.3	--	--	--	155	50	98

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
OCT 25...	1430	1	0	1	<10	<10	0	15	15	0	<50
MAR 28...	1530	9	8	1	2	1	1	70	70	0	44
APR 25...	1130	7	4	3	1	0	1	10	0	10	11
JUL 12...	1130	3	1	2	17	14	3	10	10	0	6

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT 25...	<50	0	<10	<6	4	1500	40	<100	<98	2	100
MAR 28...	44	0	180	170	10	69000	90	70	69	1	2800
APR 25...	11	0	37	31	6	13000	210	30	11	19	690
JUL 12...	4	2	16	13	3	5100	30	56	52	4	200

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT 25...	100	4	.0	.0	.0	0	0	0	20	20	4
MAR 28...	2800	10	.0	.0	.0	2	2	0	370	360	10
APR 25...	690	0	.0	.0	.3	2	2	0	90	90	0
JUL 12...	190	10	.2	.2	.0	1	0	1	40	30	10

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
NOV 23...	1330	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 28...	1530	ND	--	ND	--	ND	--	ND	--	ND
APR 25...	1130	ND	ND	ND	ND	ND	ND	ND	ND	ND

< Less than.
ND Not detected.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-AZINON, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39571)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39399)	HEPTA-CHLOR, TOTAL (UG/L) (39410)
NOV										
23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
28...	--	ND	--	ND	--	ND	--	ND	--	ND
APR										
25...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	MALA-THION, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39531)	METH-OXY-CHLOR, TOTAL (UG/L) (39480)	METH-OXY-CHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARA-THION, TOTAL (UG/L) (39600)
NOV										
23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR										
28...	--	ND	--	ND	--	ND	--	ND	--	ND
APR										
25...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978 ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1260	1310	2030	2220	1620	790	920	1420	1170	1520	1640
2	---	1530	1000	2020	---	1530	780	1040	1420	1320	1050	1670
3	---	960	1580	2010	---	1930	780	1100	1420	1410	1050	1670
4	---	1310	2400	2160	---	1580	820	1160	1410	1470	1040	1670
5	---	1450	1580	2020	---	1890	820	1230	1410	1530	1730	1680
6	---	1320	1180	2030	---	1610	820	1250	1420	1520	1710	1710
7	---	1260	1530	1800	---	1640	820	1180	1420	1520	1500	1670
8	450	1290	1380	2700	---	2110	820	1220	1420	1530	1710	1670
9	450	1080	1430	2610	---	2170	820	1080	1500	1510	1710	1680
10	450	1580	1660	2970	---	1930	820	1580	1500	1510	1660	1700
11	460	1490	1650	3080	---	1300	820	1590	1510	1530	1700	1700
12	450	1550	1340	3070	---	1970	1250	1280	1500	1540	1520	1680
13	450	1000	1580	2900	1730	1300	1260	1190	1500	1740	1520	1670
14	1120	1520	1920	2880	2020	---	1260	980	1510	1860	1520	1680
15	1120	1980	1380	2900	1840	1960	1260	990	1280	2000	1520	1670
16	1120	910	---	2870	1580	1800	1260	1060	1280	1810	1520	1700
17	1120	1320	---	---	1350	1790	1260	1360	1270	1630	1050	1590
18	1120	1280	---	1840	1970	730	1220	1230	1280	1590	1520	1600
19	1330	1320	1720	1650	1760	730	1080	1230	1280	1560	1520	1580
20	1520	---	2110	2130	1580	750	710	1250	1280	---	1520	1600
21	1520	---	1690	1960	2120	470	810	1220	1280	---	1520	1820
22	1550	---	1700	1400	2200	600	1110	1240	1420	---	1530	1850
23	1640	980	1460	1360	960	400	1110	1240	1490	---	1590	1870
24	1640	1830	1630	2140	880	410	750	1400	1470	---	1630	1890
25	1570	1300	1830	1730	1180	---	660	1390	1420	---	1650	1930
26	750	900	2090	1530	1320	400	820	1390	1160	---	1650	1940
27	910	840	1070	---	1340	400	920	1400	1180	---	1660	1960
28	1350	710	1880	---	1680	410	920	1400	670	---	1650	1880
29	1130	960	2030	---	---	590	920	1400	800	---	1660	1850
30	1440	860	2020	---	---	590	930	1390	800	---	1630	1850
31	1160	---	1980	1740	---	790	---	1400	---	---	1630	---
MEAN	1090	1250	1650	2210	1630	1220	947	1250	1320	1570	1530	1740

ND Not detected.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COULSON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)
NOV 23...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 28...	--*	ND	--	ND	--	ND	--	ND	--	ND
APR 25...	ND	ND	ND	ND	ND	--	--	ND	ND	ND

DATE	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
NOV 23...	ND	ND	ND	ND	ND	ND	ND	ND	ND
MAR 28...	[illegible]	ND	--	ND	--	ND	--	ND	--
APR 25...	[illegible]	--	--	--	--	--	--	--	--

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	1.0	.0	.0	.0	.0	8.0	16.0	18.0	28.0	28.0	29.0
2	---	1.0	.0	.0	---	.0	7.0	12.0	18.0	28.0	28.0	27.0
3	---	1.0	.0	.0	---	.0	7.0	12.5	20.0	28.0	28.0	28.0
4	---	1.0	.0	.0	---	.0	8.0	12.5	22.0	29.0	29.0	28.0
5	---	1.0	.0	.0	---	.0	8.0	13.0	19.5	27.0	27.0	29.0
6	---	1.0	.0	.0	---	.0	8.0	14.5	21.0	28.0	28.0	28.0
7	---	1.0	.0	.0	---	.0	8.0	12.5	22.0	29.0	29.0	---
8	5.0	1.0	.0	.0	---	.0	8.0	10.5	23.0	29.0	29.0	---
9	6.0	1.0	.0	.0	---	2.0	9.0	11.0	23.0	29.0	29.0	---
10	6.0	1.0	.0	.0	---	2.0	9.0	14.5	21.0	29.0	22.0	---
11	6.0	2.0	.0	.0	---	2.0	9.0	16.0	21.0	29.0	29.0	---
12	6.0	2.0	.0	.0	---	2.0	9.0	14.0	26.0	25.0	28.0	---
13	5.0	2.0	.0	.0	.0	2.0	9.0	14.5	26.0	27.0	27.0	---
14	7.0	3.0	.0	.0	.0	2.0	9.0	15.5	28.0	27.0	27.0	16.0
15	7.0	2.0	.0	.0	.0	1.0	9.0	16.0	28.0	26.0	26.0	---
16	9.0	---	.0	.0	.0	1.0	9.0	16.0	27.0	26.0	26.0	16.0
17	9.0	---	.0	.0	.0	2.0	5.0	21.0	26.0	26.0	26.0	16.0
18	11.0	---	.0	.0	.0	2.0	5.0	18.0	18.0	26.0	26.0	18.0
19	14.0	.0	.0	.0	.0	2.0	6.0	16.0	19.0	26.0	26.0	---
20	13.0	.0	.0	.0	.0	3.0	8.0	17.0	22.0	24.0	24.0	17.0
21	13.0	1.0	.0	.0	.0	3.0	9.0	20.0	21.0	23.0	23.0	---
22	8.0	1.0	.0	.0	.0	3.0	9.0	23.0	22.0	21.0	21.0	---
23	10.0	.0	.0	.0	.0	1.0	8.0	25.0	25.0	25.0	25.0	---
24	11.0	.0	.0	.0	.0	1.0	9.0	25.0	26.0	28.0	28.0	---
25	10.5	.0	---	---	.0	2.0	8.0	24.0	25.0	28.0	28.0	---
26	13.0	.0	---	---	.0	2.0	14.0	23.0	22.0	28.0	28.0	16.0
27	15.0	.0	---	---	.0	4.0	14.0	23.0	21.0	28.0	28.0	---
28	14.0	1.0	---	---	.0	2.0	14.0	22.0	28.0	27.0	27.0	---
29	14.0	1.0	---	---	---	7.0	14.0	21.0	26.0	26.0	26.0	---
30	13.0	1.0	---	---	---	3.0	13.0	19.0	25.0	26.0	26.0	---
31	11.0	---	.0	.0	---	9.0	---	18.0	---	25.0	25.0	---
MEAN	10.0	1.0	.0	.0	.0	2.0	9.0	17.5	23.0	27.0	26.5	22.5

ND Not detected.

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
SEP						
13...	1700	100	20.0	9.0	1600	8.7
13...	1800	100	19.0	9.1	--	--
13...	2000	110	18.0	8.6	--	--
13...	2200	120	17.0	8.7	--	--
13...	2400	125	16.0	8.7	--	--
14...	0200	134	15.0	8.8	--	--
14...	0400	134	14.0	9.2	--	--
14...	0600	134	13.0	9.8	--	--
14...	0800	134	13.0	9.6	--	--
14...	1000	134	14.0	9.6	--	--
14...	1200	134	15.0	10.0	--	--
14...	1400	134	17.0	9.4	1720	8.7
14...	1600	134	19.0	8.8	1670	8.6

06357800 GRAND RIVER AT LITTLE EAGLE, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	MAR 28,78		MAY 16,78		JUN 5,78		JUL 12,78	
TIME	1530		0000		1115		1130	
TOTAL CELLS/ML	860		1700		4800		16000	
DIVERSITY: DIVISION	0.9		1.5		1.0		1.4	
.CLASS	0.9		1.5		1.0		1.4	
..ORDER	0.9		1.7		1.4		1.8	
...FAMILY	0.9		2.7		1.9		2.5	
....GENUS	1.6		3.1		3.2		3.4	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...CHARACIACEAE								
....SCHROEDERIA	--	-	--	-	--	-	250	2
...HYDRODICTYACEAE								
....PEDIASTRUM	--	-	--	-	--	-	1600	10
...OOCYSTACEAE								
....ANKISTRODESMUS	--	-	270#	16	960#	20	1500	9
....CLOSTERIOPSIS	--	-	14	1	--	-	--	-
....DICTYOSPHAERIUM	--	-	--	-	850#	18	800	5
....KIRCHNERIELLA	--	-	--	-	--	-	250	2
....OOCYSTIS	--	-	*	0	780#	16	700	4
....SELENASTRUM	--	-	--	-	160	3	--	-
....TROCHISCIA	--	-	14	1	--	-	--	-
...SCENEDESMACEAE								
....ACTINASTRUM	--	-	290#	16	270	6	150	1
....SCENEDESMUS	--	-	57	3	360	7	1500	9
....TETRASTRUM	--	-	57	3	--	-	400	2
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CHLAMYDOMONAS	--	-	57	3	--	-	350	2
..ZYGNEMATALES								
...DESMIDIACEAE								
....CLOSTERIUM	--	-	--	-	180	4	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	--	-	14	1	--	-	650	4
..PENNALES								
...CYMBELLACEAE								
....CYMBELLA	290#	33	--	-	--	-	--	-
....RHOPALODIA	290#	33	--	-	--	-	--	-
...NAVICULACEAE								
....NAVICULA	--	-	--	-	*	0	--	-
....PINNULARIA	--	-	--	-	*	0	--	-
...NITZSCHIACEAE								
....NITZSCHIA	--	-	110	7	--	-	550	3
...SURIRELLACEAE								
....SURIRELLA	--	-	14	1	110	2	--	-
...TABELLARIACEAE								
....TABELLARIA	--	-	57	3	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROCCOCCALES								
...CHROCCOCCAEAE								
....AGMENELLUM	--	-	--	-	540	11	3200#	20
....ANACYSTIS	--	-	--	-	420	9	3300#	20
..HORMOGONALES								
...NOSTOCACEAE								
....ANABAENA	--	-	400#	23	--	-	--	-
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	130	3	--	-
....OSCILLATORIA	--	-	340#	20	--	-	950	6
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	14	1	--	-	--	-
....TRACHELOMONAS	290#	33	29	2	45	1	100	1

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06359500 MOREAU RIVER NEAR FAITH, SD

LOCATION.--Lat 45°11'52", long 102°09'22", in NW¼NW¼ sec.10, T.14 N., R.16 E., Perkins County, Hydrologic Unit 10130306, on left bank 10 ft (3 m) downstream from bridge on State Highway 73, 3.1 mi (5.0 km) downstream from Rabbit Creek and 13.5 mi (21.7 km) northwest of Faith.

DRAINAGE AREA.--2,660 mi^2 (6,890 km^2), approximately.

PERIOD OF RECORD.--March 1943 to current year.

REVISED RECORDS.--WSP 1176: 1944. WSP 1279: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,238.68 ft (682.350 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1949, nonrecording gage 0.3 mi (0.5 km) upstream and Oct. 5, 1949, to July 16, 1959, nonrecording gage and crest-stage gage at present site; both at datum 1.0 ft (0.30 m) higher. July 17, 1959, to Sept. 1, 1971, recording gage at site 500 ft (152 m) downstream at present datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 140 ft^3/s (3.965 m^3/s), 101,400 acre-ft/yr (125 hm^3/yr); median of yearly mean discharges, 99 ft^3/s (2.80 m^3/s), 71,700 acre-ft/yr (88 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,000 ft^3/s (736 m^3/s) Apr. 9, 1944, gage height, 20.9 ft (6.37 m), from floodmarks, site and datum then in use, from rating curve extended above 12,000 ft^3/s (340 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in 1944, 1946, 1948-51, 1955-66, 1968-71, 1974-75, 1978.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft^3/s (42.5 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 23	1500	*15800	447	*17.69	5.392	May 21	0600	1860	52.7	7.49	2.283
May 7	1330	1790	50.7	7.42	2.262	July 4	0145	2010	56.9	7.71	2.350
May 10	1245	3550	101	9.68	2.950	July 23	2145	2260	64.0	8.06	2.457

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	340	14	3.1	5.0	.00	.00	1900	232	117	251	51	40
2	538	13	3.1	5.1	.00	.00	1430	179	95	1430	42	27
3	515	13	2.8	5.2	.00	.00	1020	134	142	1320	37	20
4	563	13	2.5	5.2	.00	.00	741	112	173	1420	34	17
5	672	13	2.2	5.1	.00	.00	576	111	121	478	30	14
6	266	13	2.1	5.0	.00	.00	493	110	96	276	25	11
7	187	11	2.0	5.0	.00	.00	425	1230	171	285	22	9.5
8	149	12	2.0	5.0	.00	.00	353	898	122	197	20	7.9
9	206	13	2.0	5.0	.00	.00	273	1530	154	237	19	7.2
10	689	17	2.5	5.0	.00	.00	251	3220	133	313	17	6.4
11	772	17	3.5	4.8	.00	1.0	202	1590	104	152	17	6.0
12	287	14	5.0	4.5	.00	2.5	193	1230	89	93	13	6.4
13	139	19	5.4	4.0	.00	5.0	150	841	78	68	12	6.8
14	94	13	5.6	3.5	.00	9.0	132	544	70	54	22	6.1
15	73	11	5.6	3.0	.00	300	130	395	64	44	178	6.0
16	58	10	5.5	2.5	.00	400	122	345	62	38	206	5.7
17	48	8.0	5.5	2.0	.00	350	109	243	59	33	165	6.2
18	40	6.0	5.3	1.0	.00	500	139	181	56	27	56	7.2
19	36	5.0	5.2	.50	.00	900	246	154	58	25	31	7.7
20	29	4.0	5.0	.30	.00	2000	406	757	73	68	30	8.3
21	26	3.7	5.1	.10	.00	8420	700	1570	60	272	26	8.1
22	25	3.5	5.1	.05	.00	13200	600	707	72	560	20	8.2
23	19	3.5	5.1	.00	.00	15200	1400	355	85	1860	17	7.9
24	19	3.3	5.0	.00	.00	10900	979	236	56	1430	15	8.1
25	18	3.5	5.0	.00	.00	5910	529	167	55	590	13	7.8
26	17	3.7	5.0	.00	.00	4910	400	132	50	327	13	7.2
27	16	3.8	5.0	.00	.00	6060	450	110	106	201	12	7.4
28	16	3.7	5.1	.00	.00	6200	500	105	109	133	65	6.8
29	16	3.5	5.1	.00	---	4460	468	95	207	94	98	6.7
30	15	3.3	5.0	.00	---	3260	638	106	160	73	115	6.3
31	16	---	5.0	.00	---	2490	---	111	---	61	64	---
TOTAL	5904	274.5	131.4	76.85	.00	85477.50	15955	17730	2997	12410	1485	300.9
MEAN	190	9.15	4.24	2.48	.000	2757	532	572	99.9	400	47.9	10.0
MAX	772	19	5.6	5.2	.00	15200	1900	3220	207	1860	206	40
MIN	15	3.3	2.0	.00	.00	.00	109	95	50	25	12	5.7
AC-FT	11710	544	261	152	.00	169500	31650	35170	5940	24620	2950	597

CAL YR 1977 TOTAL 21922.55 MEAN 60.1 MAX 2160 MIN .54 AC-FT 43480
WTR YR 1978 TOTAL 142742.15 MEAN 391 MAX 15200 MIN .00 AC-FT 283100

06360500 MOREAU RIVER NEAR WHITEHORSE, SD

LOCATION.--Lat 45°15'21", long 100°50'33", in SW¼SE¼ sec.17, T.15 N., R.27 E., Dewey County, Hydrologic Unit 10130306, on left bank 30 ft (9 m) downstream from bridge, 2.4 mi (3.9 km) southeast of Whitehorse, 8.8 mi (14.2 km) downstream from Little Moreau River, and 16.3 mi (26.2 km) southeast of town of Timber Lake.

DRAINAGE AREA.--4,880 mi^2 (12,640 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,661.48 ft (506.419 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 24, 1954, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. U.S. Weather Bureau gage-height telemeter at station.

AVERAGE DISCHARGE.--24 years, 208 ft^3/s (5.891 m^3/s), 150,700 acre-ft/yr (186 hm^3/yr); median of yearly mean discharges, 130 ft^3/s (3.68 m^3/s), 94,200 acre-ft/yr (120 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,600 ft^3/s (725 m^3/s) Mar. 24, 1978, gage height, 25.31 ft (7.714 m); maximum gage height, 26.20 ft (7.986 m) Mar. 14, 1972 (backwater from ice); no flow at times each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1953 reached a stage of about 26.2 ft (7.99 m). Flood in March 1947 was probably higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,800 ft^3/s (51.0 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 24	0930	*25600	725	*25.31	7.714	May 12	0645	5520	156	12.75	3.886
Apr. 25	0415	2640	74.8	8.41	2.563	July 1	0730	1920	54.4	6.95	2.118
May 1	0430	1950	55.2	7.02	2.140	July 25	2315	1860	52.7	6.85	2.088
May 9	1230	2380	67.4	7.53	2.295						

No flow for many days.

REVISIONS.--The daily discharge, in cubic feet per second, for Aug. 22, 1977, has been revised to 22 ft^3/s. This supersedes the figure published in the report for 1977.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	135	21	3.5	.10	.00	.0	5530	1650	177	1320	164	75
2	134	19	3.5	.10	.00	.0	4060	1080	160	524	131	39
3	780	19	3.3	.10	.00	.0	2990	815	156	345	122	116
4	998	18	3.0	.05	.00	.0	2310	620	154	922	111	111
5	817	14	2.5	.00	.00	.0	1910	511	150	1260	87	89
6	649	12	2.0	.00	.00	.0	1670	423	129	1460	72	67
7	914	9.7	1.0	.00	.00	.0	1440	401	180	779	60	53
8	601	15	.40	.00	.00	.0	1210	720	175	482	50	39
9	593	15	.20	.00	.00	.0	997	1820	139	348	43	28
10	530	12	.30	.00	.00	.0	819	1440	149	311	35	22
11	360	12	.40	.00	.00	.0	683	1990	164	245	37	19
12	643	16	.60	.00	.00	1.0	573	4270	143	242	30	15
13	913	8.6	.80	.00	.00	3.0	520	2320	139	323	22	11
14	508	11	.80	.00	.00	5.0	457	2120	122	210	20	7.6
15	346	16	.80	.00	.00	50	408	1400	99	145	41	3.9
16	253	18	.70	.00	.00	300	414	980	86	106	167	2.3
17	193	7.3	.73	.00	.00	400	409	761	69	79	78	1.3
18	155	7.0	.70	.00	.00	350	648	633	58	60	55	1.8
19	126	6.0	.70	.00	.00	500	970	510	50	48	119	2.0
20	102	5.0	.60	.00	.00	2000	1340	405	38	46	240	1.6
21	86	4.0	.60	.00	.00	7000	1030	504	31	83	161	1.0
22	72	3.8	.60	.00	.00	11500	885	556	27	109	111	1.6
23	62	3.5	.50	.00	.00	20000	1350	1560	31	108	91	2.7
24	54	3.5	.50	.00	.00	24900	2090	944	22	280	70	2.6
25	45	3.3	.40	.00	.00	23100	2490	600	40	1420	56	2.1
26	41	3.2	.40	.00	.00	17800	1780	431	166	1430	44	1.6
27	36	3.5	.50	.00	.00	12700	1180	336	127	765	40	1.3
28	33	3.6	.50	.00	.00	12500	840	302	89	515	72	1.1
29	27	3.6	.40	.00	---	12000	1440	265	108	363	77	.84
30	24	3.6	.30	.00	---	10000	1260	234	719	265	44	.53
31	21	---	.20	.00	---	7300	---	205	---	208	33	---
TOTAL	10251	297.2	31.43	.35	.00	162409.0	43703	30806	3897	14801	2483	719.87
MEAN	331	9.91	1.01	.011	.000	5239	1457	994	130	477	80.1	24.0
MAX	998	21	3.5	.10	.00	24900	5530	4270	719	1460	240	116
MIN	21	3.2	.20	.00	.00	.00	408	205	22	46	20	.53
AC-FT	20330	589	62	.7	.00	322100	86680	61100	7730	29360	4930	1430

CAL YR 1977 TOTAL 35313.70 MEAN 96.7 MAX 2180 MIN .00 AC-FT 70040
WTR YR 1978 TOTAL 269398.85 MEAN 738 MAX 24900 MIN .00 AC-FT 534400

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969, 1972-76, 1978.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1970 to September 1976.

REMARKS.--No flow Jan. 5 to Mar. 11. Sediment-discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,300 mg/L May 9, 1972; minimum daily mean, 0 mg/L on many days most years.
SEDIMENT LOADS: Maximum daily, 420,000 tons (381,000 tonnes) May 10, 1975; minimum daily, 0 ton (0 tonne) on many days each year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
NOV 29...	1320	3.6	1710	7.5	.0	12	--	11.0	6	70	310
DEC 19...	1030	.70	2400	7.8	.0	10	--	9.4	K3	K4	500
MAR 29...	0930	12400	322	8.0	4.5	1800	--	11.6	K40	1100	69
APR 26...	1030	1820	550	7.8	11.0	1200	--	9.0	810	3010	88
MAY 17...	1015	770	790	8.0	17.0	900	--	7.9	630	2150	180
JUN 06...	0930	128	1640	8.2	21.0	85	--	7.3	K60	K110	320
JUL 13...	0930	325	990	8.2	21.5	--	1200	9.0	1300	650	190
AUG 08...	0930	50	1250	8.4	24.0	--	24	7.0	K30	K30	280
SEP 13...	1155	11	1680	8.1	18.0	--	22	9.0	40	20	260

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
NOV 29...	110	81	27	260	64	6.4	8.4	250	0	210
DEC 19...	190	130	43	400	63	7.8	12	380	0	312
MAR 29...	12	20	4.6	36	52	1.9	3.6	69	0	57
APR 26...	0	25	6.3	73	63	3.4	4.3	140	0	110
MAY 17...	55	45	16	110	56	3.6	6.1	150	0	120
JUN 06...	100	80	30	240	61	5.8	8.5	270	0	220
JUL 13...	75	45	20	130	58	4.1	7.1	--	--	120
AUG 08...	140	69	26	180	57	4.7	9.5	--	--	140
SEP 13...	65	68	23	270	68	7.2	11	--	--	200

K Non-ideal colony count.

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
NOV 29...	610	11	.3	7.6	1140	1130	1.55	11.1	.08	--
DEC 19...	920	13	.7	9.3	1720	1720	2.34	3.25	.18	--
MAR 29...	87	1.7	.1	4.1	203	191	.28	6800	.37	4.9
APR 26...	120	3.0	.2	6.2	317	307	.43	1560	.30	3.3
MAY 17...	260	4.7	.2	6.9	529	523	.72	1100	.20	2.4
JUN 06...	570	9.8	.3	7.9	1080	1080	1.47	373	.01	.62
JUL 13...	360	5.3	.4	9.0	628	649	.85	551	.58	3.4
AUG 08...	490	9.7	.4	8.7	876	877	1.19	118	.02	.99
SEP 13...	640	15	.4	5.5	1160	1150	1.58	34.5	.02	.79

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
NOV 29...	--	.07	--	--	--	--	--	--	.07	.07
DEC 19...	--	.31	--	--	--	--	--	--	.02	.06
MAR 29...	4.7	.24	.64	4.3	--	--	5.3	23	.03	1.6
APR 26...	3.3	.04	.59	2.7	--	--	3.6	16	.03	.73
MAY 17...	2.2	.22	.36	2.0	--	--	2.6	12	.01	.99
JUN 06...	.58	.04	.54	.08	--	--	.63	2.8	.00	.14
JUL 13...	3.3	.07	.51	2.9	--	--	4.0	18	.05	.85
AUG 08...	.99	.00	.54	.45	--	--	1.0	4.5	.01	.08
SEP 13...	.68	.11	.79	.00	--	--	.81	3.6	.01	.07

DATE	TIME	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV 29...	1320	--	--	5.3	19000	--	--	172	1.6	92
DEC 19...	1030	--	--	7.4	--	--	--	490	.93	63
MAR 29...	0930	--	--	48	0	--	--	5320	178000	93
APR 26...	1030	--	--	34	--	--	--	3290	16200	95
MAY 17...	1015	--	--	24	970	--	--	2030	4220	95
JUN 06...	0930	--	--	8.5	19000	--	--	308	106	95
AUG 08...	0930	--	--	8.3	--	--	--	79	10	92

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUSPENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV 29...	1320	2	1	1	4	4	0	20	20	0	0
APR 26...	1030	10	8	2	2	0	2	40	40	0	22
JUL 13...	0930	6	3	3	0	0	2	60	50	10	20

DATE	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
NOV 29...	0	0	4	2	2	570	20	30	15	15	60
APR 26...	21	1	88	82	6	62000	40	100	94	6	1500
JUL 13...	18	2	78	74	4	59000	60	48	39	9	730

DATE	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 29...	20	40	.1	.1	.0	3	1	2	20	10	8
APR 26...	1500	10	.0	.0	.0	2	2	0	260	260	0
JUL 13...	720	10	.2	.2	.0	4	2	2	240	240	0

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	OXYGEN, DISSOLVED (MG/L) (00300)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)
SEP						
13...	1000	11	17.0	9.0	1680	8.7
13...	1100	11	17.5	9.1	--	--
13...	1200	11	18.0	9.2	--	--
13...	1400	11	19.0	9.0	--	--
13...	1600	11	20.0	8.8	--	--
13...	1800	9.8	19.0	8.9	--	--
13...	2000	9.8	18.0	8.9	--	--
13...	2200	9.8	17.0	9.1	--	--
13...	2400	9.8	16.0	9.3	--	--
14...	0200	8.1	15.0	9.5	--	--
14...	0400	8.1	14.0	9.6	--	--
14...	0600	8.1	12.0	9.7	--	--
14...	0800	8.1	13.0	9.5	--	--
14...	1000	8.1	15.0	9.2	1620	8.8

06360500 MOREAU RIVER NEAR WHITEHORSE, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	NOV 29,77	MAR 29,78	MAY 17,78	JUN 6,78	JUL 13,78
TIME	1320	0930	0000	0930	0930
TOTAL CELLS/ML	19000	0	970	19000	1400
DIVERSITY: DIVISION	1.3	0.0	0.7	0.8	1.8
.CLASS	1.4	0.0	0.7	0.8	1.8
..ORDER	2.1	0.0	0.7	1.0	2.1
...FAMILY	2.4	0.0	0.7	1.6	2.2
....GENUS	2.9	0.0	0.7	2.4	2.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...OOCYSTACEAE										
....ANKISTRODESMUS	6500#	34	--	-	--	-	1900	10	--	-
....CHODATELLA	150	1	--	-	--	-	--	-	--	-
....KIRCHNERIELLA	--	-	--	-	--	-	250	1	--	-
....OOCYSTIS	--	-	--	-	--	-	1500	8	--	-
....SELENASTRUM	1300	7	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	8900#	48	--	-
....CRUCIGENIA	580	3	--	-	--	-	--	-	--	-
....SCENEDESMUS	580	3	--	-	--	-	750	4	620#	44
....TETRASTRUM	--	-	--	-	--	-	250	1	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	3000#	16	--	-	29	3	440	2	89	6
....CHLOROGONIUM	440	2	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..PENNALES										
...NAVICULACEAE										
....NAVICULA	--	-	--	-	--	-	--	-	89	6
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	29	3	--	-	180	13
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCACEAE										
....AGMENELLUM	--	-	--	-	--	-	2000	11	--	-
....ANACYSTIS	1200	6	--	-	--	-	2600	14	180	13
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	2600	13	--	-	860#	88	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	2300	12	--	-	57	6	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	440	2	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....PHACUS	150	1	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-	270#	19
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	150	1	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
 * - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06392900 BEAVER CREEK AT MALLO CAMP, NEAR FOUR CORNERS, WY

LOCATION.--Lat 44°05'04", long 104°03'41", in NE¼NE¼ sec.4, T.47 N., R.60 W., Weston County, Hydrologic Unit 10120107, between Forest Service Road 811 and right bank at Mallo Campgrounds, 300 ft (91 m) upstream from mouth, 800 ft (244 m) upstream from dam on Stockade Beaver Creek, and 3.8 mi (6.1 km) east of Four Corners.

DRAINAGE AREA.--10.3 mi² (26.7 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,030 ft (1,840 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21 ft³/s (0.59 m³/s) Apr. 26, gage height, 5.40 ft (1.646 m); minimum daily, 0.23 ft³/s (0.007 m³/s) Oct. 14, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft³/s (0.28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 10	2030	13	0.37	4.97	1.515	July 21	unknown	*16	0.45	*5.12	1.561
May 18	2230	11	0.31	4.87	1.484						

Minimum daily discharge, 0.86 ft³/s (0.024 m³/s) Dec. 28 to Jan. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	1.3	.90	.86	1.3	1.5	1.4	2.6	3.1	2.7	2.9	3.0
2	1.5	1.3	.90	.86	1.3	1.5	1.5	2.6	2.9	2.8	2.9	3.0
3	1.5	1.3	1.0	.86	1.3	1.5	1.5	2.6	2.9	2.7	2.9	3.0
4	1.4	1.3	1.1	.86	1.3	1.5	1.5	2.9	2.8	2.7	2.8	3.0
5	1.4	1.3	1.3	.86	1.3	1.5	1.5	2.9	2.8	2.7	2.8	2.9
6	1.4	1.3	1.3	.88	1.3	1.5	1.6	2.9	2.8	2.7	2.9	2.9
7	1.5	1.3	1.3	.90	1.3	1.5	1.6	2.9	2.6	2.7	2.9	2.9
8	1.5	1.3	1.3	.92	1.3	1.5	1.6	3.0	2.6	2.8	2.9	2.9
9	1.5	1.3	1.3	.94	1.3	1.5	1.7	3.0	2.6	2.8	2.9	3.0
10	1.5	1.3	1.3	1.0	1.3	1.5	1.7	4.8	2.6	2.8	2.9	3.0
11	1.4	1.4	1.3	1.1	1.3	1.5	1.7	5.2	2.6	2.8	2.9	3.1
12	1.4	1.4	1.3	1.1	1.3	1.5	1.7	3.8	2.6	2.8	2.9	3.0
13	1.4	1.4	1.3	1.1	1.3	1.5	1.7	3.4	2.6	2.8	2.9	3.1
14	1.4	1.4	1.3	1.1	1.3	1.5	1.7	3.3	2.6	2.8	2.9	3.0
15	1.4	1.4	1.4	1.1	1.3	1.5	1.8	3.1	2.6	2.8	2.9	3.0
16	1.4	1.4	1.4	1.1	1.3	1.5	1.8	3.0	2.6	2.8	2.9	2.9
17	1.3	1.4	1.3	1.2	1.3	1.5	1.8	3.3	2.6	2.8	2.9	2.9
18	1.3	1.4	1.1	1.2	1.3	1.5	1.8	5.6	2.6	2.8	2.9	2.9
19	1.3	1.3	1.1	1.2	1.3	1.5	1.8	6.0	2.6	2.8	2.9	2.8
20	1.3	1.1	1.1	1.2	1.4	1.5	1.9	3.9	2.6	3.5	2.8	2.7
21	1.3	1.0	1.1	1.2	1.4	1.5	2.0	3.7	2.6	5.0	2.8	2.6
22	1.4	.96	1.0	1.3	1.4	1.5	2.1	3.5	2.6	4.0	2.9	2.6
23	1.4	.94	.96	1.3	1.4	1.5	2.1	3.3	2.6	3.3	2.9	2.5
24	1.4	.92	.94	1.3	1.4	1.5	2.1	3.2	2.6	3.1	2.8	2.5
25	1.3	.90	.92	1.3	1.4	1.4	2.2	3.1	2.6	3.0	2.9	2.5
26	1.3	.90	.90	1.3	1.4	1.4	2.3	3.2	2.6	3.0	2.9	2.4
27	1.3	.90	.88	1.3	1.4	1.4	2.4	3.2	2.6	2.9	2.9	2.4
28	1.3	.90	.86	1.3	1.4	1.5	2.6	3.3	2.6	2.9	2.9	2.3
29	1.3	.90	.86	1.3	---	1.5	2.6	3.1	2.6	2.9	2.9	2.3
30	1.3	.90	.86	1.3	---	1.4	2.6	3.2	2.7	2.9	2.9	2.3
31	1.3	---	.86	1.3	---	1.4	---	3.1	---	3.0	3.1	---
TOTAL	43.0	35.82	34.44	34.54	37.3	46.0	56.3	106.7	79.8	92.1	89.6	83.4
MEAN	1.39	1.19	1.11	1.11	1.33	1.48	1.88	3.44	2.66	2.97	2.89	2.78
MAX	1.6	1.4	1.4	1.3	1.4	1.5	2.6	6.0	3.1	5.0	3.1	3.1
MIN	1.3	.90	.86	.86	1.3	1.4	1.4	2.6	2.6	2.7	2.8	2.3
AC-FT	85	71	68	69	74	91	112	212	158	183	178	165

CAL YR 1977 TOTAL 419.46 MEAN 1.15 MAX 2.0 MIN .42 AC-FT 832
WTR YR 1978 TOTAL 739.00 MEAN 2.02 MAX 6.0 MIN .86 AC-FT 1470

06392950 STOCKADE BEAVER CREEK NEAR NEWCASTLE, WY

LOCATION.--Lat 43°51'30", long 104°06'23", in SW¼SE¼ sec.19, T.45 N., R.60 W., Weston County, Hydrologic Unit 10120107, on left bank at downstream side of bridge on county highway 0.6 mi (1.0 km) upstream from South Draw, 2.5 mi (4.0 km) upstream of LAK Reservoir Dam, and 4.7 mi (7.6 km) east of Newcastle.

DRAINAGE AREA.--107 mi² (277 km²).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,455 ft (1,358 m), from topographic map.

REMARKS.--Records good. A few small diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 107 ft³/s (3.03 m³/s) June 16, 1977, gage height, 7.54 ft (2.298 m); maximum gage height, 7.91 ft (2.411 m) Jan. 12, 1975 (backwater from ice); minimum daily discharge, 6.2 ft³/s (0.18 m³/s) May 27, 28, 31, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 16 ft³/s (0.45 m³/s) Oct. 1, June 16, no peak above base of 50 ft³/s (1.42 m³/s); minimum daily discharge, 9.4 ft³/s (0.27 m³/s) July 16-31.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	16	14	15	13	14	14	14	13	11	10	11	13
2	14	14	15	13	14	14	14	13	11	10	10	13
3	14	14	15	13	14	14	14	13	11	10	10	13
4	14	14	15	13	14	14	14	13	11	10	10	13
5	14	14	14	13	14	14	14	13	11	10	10	13
6	14	14	14	13	14	14	14	13	11	9.8	10	13
7	14	14	14	13	14	14	14	13	11	9.8	10	13
8	13	14	14	13	14	14	14	13	11	9.8	10	13
9	13	14	14	13	14	14	14	13	11	9.8	10	13
10	13	14	14	13	14	14	14	13	11	9.8	10	13
11	13	14	14	13	14	14	14	13	11	9.6	11	13
12	13	14	14	13	14	14	14	13	11	9.6	11	13
13	13	14	14	13	14	14	14	13	11	9.6	11	13
14	13	14	14	13	14	14	14	13	11	9.6	11	13
15	13	14	14	13	14	14	14	13	11	9.6	11	13
16	13	15	13	13	14	14	14	12	16	9.4	11	13
17	13	15	13	13	14	14	14	12	14	9.4	11	13
18	13	15	13	13	14	14	14	12	13	9.4	12	13
19	13	15	13	13	14	14	14	12	12	9.4	12	13
20	13	15	13	13	14	14	14	12	11	9.4	12	13
21	13	15	13	13	14	14	14	12	10	9.4	12	13
22	13	15	13	13	14	14	14	12	10	9.4	12	13
23	13	15	13	13	14	14	14	12	10	9.4	12	13
24	14	15	13	13	14	14	14	12	10	9.4	12	13
25	14	15	13	13	14	14	14	12	10	9.4	12	13
26	14	15	13	13	14	14	14	11	10	9.4	13	13
27	14	15	13	13	14	14	14	11	10	9.4	13	13
28	14	15	13	13	14	14	14	11	10	9.4	13	13
29	14	15	13	13	---	14	14	11	10	9.4	13	13
30	14	15	13	13	---	14	13	11	10	9.4	13	13
31	14	---	13	13	---	14	---	11	---	9.4	13	---
TOTAL	420	435	422	403	392	434	419	381	331	297.4	352	390
MEAN	13.5	14.5	13.6	13.0	14.0	14.0	14.0	12.3	11.0	9.59	11.4	13.0
MAX	16	15	15	13	14	14	14	13	16	10	13	13
MIN	13	14	13	13	14	14	13	11	10	9.4	10	13
AC-FT	833	863	837	799	778	861	831	756	657	590	698	774

CAL YR 1977 TOTAL 4543.6 MEAN 12.4 MAX 27 MIN 6.2 AC-FT 9010
WTR YR 1978 TOTAL 4676.4 MEAN 12.8 MAX 16 MIN 9.4 AC-FT 9280

06395000 CHEYENNE RIVER AT EDGEMONT, SD

LOCATION.--Lat 43°18'20", long 103°49'14", in SW¼SE¼SE¼ sec.36, T.8 S., R.2 E., Fall River County, Hydrologic Unit 10120106, on right bank at downstream side of bridge on U.S. Highway 18, at Edgemont, 300 ft (91 m) downstream from Burlington Northern Railroad bridge and 600 ft (183 m) upstream from Cottonwood Creek.

DRAINAGE AREA.--7,143 mi² (18,500 km²).

PERIOD OF RECORD.--June 1903 to November 1906 (no winter records), April 1928 to February 1933, October 1946 to current year.

REVISED RECORDS.--WSP 1086: Drainage area. WSP 1116: 1947.

GAGE.--Water-stage recorder. Datum of gage is 3,414.56 ft (1,040.758 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 1, 1906, nonrecording gage 20 ft (6 m) upstream at datum 0.7 ft (0.21 m) lower. Apr. 11, 1928, to Feb. 28, 1933, Oct. 4, 1946, to Oct. 23, 1947, and Jan. 11, 1961, to Apr. 24, 1963, nonrecording gage, and Oct. 24, 1947, to Jan. 10, 1961, and Apr. 25, 1963, to Sept. 30, 1972, water-stage recorder all at present site at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Many small reservoirs above station used for stock and irrigation water, total capacity, about 45,000 acre-ft (55.5 hm³). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--36 years, 103 ft³/s (2.917 m³/s), 74,260 acre-ft/yr (91.6 hm³/yr); median of yearly mean discharges, 76 ft³/s (2.15 m³/s), 55,100 acre-ft/yr (68 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,800 ft³/s (793 m³/s) May 20, 1978, gage height, 13.65 ft (4.161 m), present datum; no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 1920, reached a stage of 13.0 ft (3.96 m) and May 1, 1922, 14.0 ft (4.27 m), present datum, from floodmarks at railroad bridge.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,500 ft³/s (42.5 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	1500	1700	48.1	5.34	1.628
May 10	1430	2280	64.6	5.47	1.667
May 20	0600	*28000	793	*13.65	4.161
May 29	0300	2640	74.8	4.82	1.469
July 23	0600	5860	166	6.57	2.003
July 30	0730	2130	60.3	4.17	1.271

Minimum daily discharge, 0.50 ft³/s (0.014 m³/s) Nov. 22.

REVISIONS.--Revised daily discharges, in cubic feet per second, for September 1977 are given below. These figures supersede those published in the report for 1977.

Sept. 12...	2.4
13...	3.6
14...	3.6
15...	3.6
Sept. 16...	3.6
17...	3.6
18...	3.6
Sept. 19...	3.0
20...	3.0
21...	2.4
Sept. 22...	3.6
23...	289
24...	46
Sept. 25...	104
26...	166
27...	43
Sept. 28...	23
29...	18
30...	21

Month	Total	Mean	Max	Min	Ac-ft
September 1977	780.2	26.0	289	1.6	1550
Wtr Yr 1977	9939.66	27.2	1130	0	19720

06395000 CHEYENNE RIVER AT EDGEMONT, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	27	.72	18	4.5	3.0	9.0	189	34	588	109	850	68
2	95	.80	15	4.5	4.0	8.0	148	64	480	123	702	43
3	48	.90	17	5.0	5.0	7.0	114	43	394	213	702	35
4	68	2.4	15	5.5	6.0	6.0	93	53	349	120	633	29
5	27	4.2	12	7.0	7.0	7.0	72	86	325	100	588	27
6	17	4.8	7.0	7.0	6.0	8.0	60	81	293	92	436	24
7	12	4.8	5.0	6.0	6.0	10	57	106	271	109	447	21
8	8.4	4.5	4.0	5.0	6.0	11	38	438	246	206	237	19
9	7.2	3.0	3.5	4.5	6.0	13	28	540	241	145	325	18
10	11	3.5	3.0	4.0	6.0	20	30	1660	246	202	409	17
11	6.6	7.0	3.5	4.0	6.0	50	28	1900	233	229	325	20
12	5.4	17	5.0	4.0	6.0	100	27	1080	198	213	254	21
13	4.2	20	7.0	4.0	6.0	200	27	333	169	148	218	21
14	2.7	19	9.0	4.0	6.0	400	28	206	152	114	198	20
15	2.7	18	10	3.9	6.0	600	31	173	139	97	221	20
16	2.7	19	9.0	3.9	5.5	500	31	142	139	82	225	19
17	2.4	17	8.0	3.9	5.0	350	33	125	169	75	480	20
18	2.1	15	8.0	3.8	6.0	300	30	4650	194	64	452	20
19	1.9	8.0	8.0	3.8	8.0	450	27	12200	271	57	307	20
20	2.1	4.0	8.0	3.7	9.0	986	27	24000	194	55	246	19
21	1.9	2.0	8.0	3.6	10	928	25	7080	162	75	169	20
22	1.6	.50	9.0	3.5	11	716	24	2090	145	1290	132	19
23	1.9	2.0	10	3.5	13	681	27	1510	132	4610	105	19
24	1.4	4.0	9.0	3.5	15	674	28	1370	448	1750	87	18
25	1.3	8.0	7.0	3.5	13	600	25	984	376	1010	70	17
26	1.3	14	6.0	3.3	12	374	23	775	210	647	62	17
27	1.0	18	5.5	3.2	11	269	22	701	172	469	56	15
28	1.0	20	5.0	3.2	10	318	24	1820	136	389	52	14
29	1.2	20	4.5	3.1	---	318	28	1960	114	354	48	14
30	1.3	20	4.5	3.0	---	289	40	1040	103	1460	43	13
31	.90	---	4.5	3.0	---	231	---	709	---	1070	64	---
TOTAL	368.20	282.12	248.0	128.4	213.5	9433.0	1384	67953	7289	15677	9143	667
MEAN	11.9	9.40	8.00	4.14	7.63	304	46.1	2192	243	506	295	22.2
MAX	95	20	18	7.0	15	986	189	24000	588	4610	850	68
MIN	.90	.50	3.0	3.0	3.0	6.0	22	34	103	55	43	13
AC-FT	730	560	492	255	423	18710	2750	134800	14460	31100	18140	1320

CAL YR 1977 TOTAL 10202.73 MEAN 28.0 MAX 1130 MIN .00 AC-FT 20240
WTR YR 1978 TOTAL 112786.22 MEAN 309 MAX 24000 MIN .50 AC-FT 223700

06400000 HAT CREEK NEAR EDGEMONT, SD

LOCATION.--Lat 43°14'24", long 103°35'16", in SW¼SE¼NE¼ sec.25, T.9 S., R.4 E., Fall River County, Hydrologic Unit 10120108, on right bank at upstream side of bridge on State Highway 71, 2.0 mi (3.2 km) upstream from mouth, 2.0 mi (3.2 km) west of Heppner, and 12.5 mi (20.1 km) southeast of Edgemont.

DRAINAGE AREA.--1,044 mi² (2,704 km²).

PERIOD OF RECORD.--April 1905 to September 1906, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,295.71 ft (1,004.532 m) National Geodetic Vertical Datum of 1929. Nonrecording gage Apr. 8, 1905, to May 2, 1906, at site 0.6 mi (1.0 km) downstream and May 3 to July 7, 1906, at site 0.4 mi (0.6 km) upstream at different datum. Nov. 6, 1950, to May 1, 1951, and July 18 to Sept. 7, 1975, nonrecording gage and May 2, 1951, to July 17, 1975, recording gage, at site 0.4 mi (0.6 km) downstream at present datum.

REMARKS.--Records good. A few small diversions above station for irrigation. Lander ditch diverts water from Hat Creek 0.4 mi (0.[illegible]) upstream from gaging station for irrigating hay meadows downstream from station. Several observations of water temperature and specific conductance were made during the year. Results of discharge measurements, in cubic feet per second, of Lander ditch during water year 1976-77 are given herewith:

Oct. 3	0	Feb. 14	0	June 20	1.17
Nov. 22	0	Mar. 23	0	July 17	0
Dec. 20	0	Apr. 26	0.47	Aug. 15	0
Jan. 18	0	May 24	3.70	Sept.27	0

AVERAGE DISCHARGE.--29 years, 20.5 ft³/s (0.581 m³/s), 14,850 acre-ft/yr (18.3 hm³/yr); median of yearly mean discharges, 13 ft³/s (0.37 m³/s), 9,400 acre-ft/yr (12 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,300 ft³/s (377 m³/s) June 16, 1967, gage height, 13.35 ft (4.069 m), from rating curve extended above 2,600 ft³/s (73.6 m³/s) on basis of slope-area measurement at 11.98 ft (3.652 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,070 ft³/s (30.3 m³/s) May 10, gage height, 10.51 ft (3.203 m); maximum gage height, 12.78 ft (3.895 m) Mar. 15 (backwater from ice); no other peak above base of 1,000 ft³/s (28.3 m³/s); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.9	.00	.00	.00	.00	.00	3.8	2.8	13	.16	.73	.00
2	.00	.00	.00	.00	.00	.00	2.4	2.5	9.1	.09	1.3	.00
3	.00	.00	.00	.00	.05	.00	1.5	1.7	6.0	.05	2.0	.00
4	.00	.00	.00	.00	.10	.00	1.0	3.6	3.8	.06	2.7	.00
5	.00	.00	.00	.00	.10	.00	1.3	5.0	2.2	.02	2.5	.00
6	.00	.00	.00	.00	.02	.00	1.4	4.8	1.7	.01	2.4	.00
7	.00	.00	.00	.00	.02	.00	1.4	26	2.1	.02	2.1	.00
8	.00	.00	.00	.00	.02	.00	1.2	241	2.2	.01	1.5	.00
9	.00	.00	.00	.00	.02	.00	2.1	491	2.1	.01	1.6	.00
10	.00	.00	.00	.00	.01	.00	2.3	696	2.9	.01	1.2	.00
11	.00	.00	.00	.00	.01	5.0	2.0	352	2.7	.01	.73	.00
12	.00	.00	.00	.00	.01	15	2.0	62	2.1	.00	.54	.00
13	.00	.00	.00	.00	.01	80	2.8	36	1.5	.00	.45	.00
14	.00	.00	.00	.00	.01	100	2.5	26	1.2	.00	.54	.00
15	.00	.00	.00	.00	.01	300	2.5	18	1.1	.00	.00	.00
16	.00	.00	.04	.00	.00	150	2.7	15	.73	.00	.00	.00
17	.00	.00	.04	.00	.00	200	2.3	13	.45	.00	.00	.00
18	.00	.00	.06	.00	.00	300	1.5	20	.12	2.9	.00	.00
19	.00	.00	.06	.00	.00	400	1.8	13	.12	1.6	.00	.00
20	.00	.00	.09	.00	.00	600	2.1	10	.19	.96	.00	.00
21	.00	.00	.10	.00	.00	800	1.8	17	.20	1.0	.00	.00
22	.00	.00	.06	.00	.00	400	2.0	21	.16	2.3	.00	.00
23	.00	.00	.04	.00	.00	223	2.0	13	.15	14	.00	.00
24	.00	.00	.02	.00	.00	51	2.1	10	.10	2.5	.00	.00
25	.00	.00	.00	.00	.00	17	2.1	6.8	.09	8.1	.00	.00
26	.00	.00	.00	.00	.00	10	2.0	6.0	.06	3.8	.00	.00
27	.00	.00	.00	.00	.00	12	1.8	8.4	.10	1.8	.00	.00
28	.00	.00	.00	.00	.00	11	2.1	8.4	.58	1.2	.00	.00
29	.00	.00	.00	.00	---	9.1	2.2	7.3	.34	.82	.00	.00
30	.00	.00	.00	.00	---	7.8	2.3	7.6	.27	.73	.00	.00
31	.00	---	.00	.00	---	6.0	---	14	---	.92	.00	---
TOTAL	2.90	.00	.51	.00	.39	3696.90	61.0	2158.9	57.36	43.08	20.29	.00
MEAN	.094	.000	.016	.000	.014	119	2.03	69.6	1.91	1.39	.65	.000
MAX	2.9	.00	.10	.00	.10	800	3.8	696	13	14	2.7	.00
MIN	.00	.00	.00	.00	.00	.00	1.0	1.7	.06	.00	.00	.00
AC-FT	5.8	.00	1.0	.00	.8	7330	121	4280	114	85	40	.00

CAL YR 1977 TOTAL 226.11 MEAN .62 MAX 46 MIN .00 AC-FT 448
WTR YR 1978 TOTAL 6041.33 MEAN 16.6 MAX 800 MIN .00 AC-FT 11980

06400497 CASCADE SPRINGS NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'10", long 103°33'07", in SE¼SW¼ sec.20, T.8 S., R.5 E., Fall River County, Hydrologic Unit 10120106, on right bank near upstream end of culvert on State Highway 71, 3.3 mi (5.3 km) upstream from mouth, and 8.5 mi (13.7 km) southwest of Hot Springs.

PERIOD OF RECORD.--July 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft (1,049 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 49 ft³/s (1.39 m³/s) July 4, 1977, gage height, 6.25 ft (1.905 m); minimum daily, 18 ft³/s (0.51 m³/s) for many days in 1977, 78.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 25 ft³/s (0.62 m³/s) Dec. 30 to Jan. 24; minimum daily, 18 ft³/s (0.51 m³/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	22	23	25	23	21	20	19	21	22	19	19
2	18	22	23	25	23	21	20	19	22	22	20	19
3	18	22	23	25	23	21	20	19	22	22	20	19
4	18	22	23	25	23	21	20	19	22	22	19	19
5	18	22	23	25	23	21	20	19	22	22	19	19
6	18	22	23	25	23	21	20	19	22	22	19	19
7	18	22	23	25	23	21	20	19	22	21	19	19
8	18	22	24	25	22	21	20	19	22	21	19	19
9	18	22	24	25	22	21	20	19	22	21	19	19
10	18	22	24	25	22	21	20	20	22	21	19	19
11	18	22	24	25	22	21	20	20	22	21	19	19
12	18	22	24	25	22	21	20	20	22	21	19	19
13	18	22	24	25	22	21	20	20	23	21	19	19
14	20	22	24	25	22	21	19	20	23	21	19	19
15	20	22	24	25	22	21	19	20	23	21	18	19
16	20	22	24	25	22	21	19	20	23	21	19	18
17	21	23	24	25	22	21	19	20	23	21	19	18
18	22	23	24	25	22	21	19	20	23	21	19	18
19	22	23	24	25	22	21	19	21	23	21	19	18
20	22	23	24	25	22	21	19	21	23	21	19	18
21	22	23	24	25	22	21	19	21	23	20	19	18
22	22	23	24	25	22	21	19	21	23	20	19	18
23	22	23	24	25	22	21	19	21	23	20	19	18
24	22	23	24	25	22	21	19	21	23	20	19	18
25	22	23	24	24	22	21	19	21	23	20	19	18
26	22	23	24	24	22	21	19	21	23	20	19	18
27	22	23	24	24	21	20	19	21	22	20	19	18
28	22	23	24	24	21	20	19	21	22	20	19	18
29	22	23	24	24	---	20	19	21	22	20	19	18
30	22	23	25	24	---	21	19	21	22	20	19	18
31	22	---	25	24	---	20	---	21	---	20	19	---
TOTAL	624	674	739	768	621	647	583	624	673	646	590	555
MEAN	20.1	22.5	23.8	24.8	22.2	20.9	19.4	20.1	22.4	20.8	19.0	18.5
MAX	22	23	25	25	23	21	20	21	23	22	20	19
MIN	18	22	23	24	21	20	19	19	21	20	18	18
AC-FT	1240	1340	1470	1520	1230	1280	1160	1240	1330	1280	1170	1100

CAL YR 1977 TOTAL 7342 MEAN 20.1 MAX 25 MIN 18 AC-FT 14560
WTR YR 1978 TOTAL 7744 MEAN 21.2 MAX 25 MIN 18 AC-FT 15360

06401000 ANGOSTURA RESERVOIR NEAR HOT SPRINGS, SD

LOCATION.--Lat 43°20'35", long 103°26'16", in SW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120106, at dam on Cheyenne River, 6.5 mi (10.5 km) southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi² (23,570 km²), approximately.

PERIOD OF RECORD.--October 1949 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Aug. 26, 1965, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by concrete gravity dam with earth embankment with gated concrete gravity spillway section. Storage began Oct. 3, 1949; dam completed December 1949. Conservation capacity, 127,558 acre-ft (157 hm³) between elevations 3,139.75 ft (956.996 m), invert of lowest outlet, and 3,187.2 ft (971.46 m), top of spillway gates. Dead storage below elevation 3,139.75 ft (956.996 m), 11,203 acre-ft (13.8 hm³). Surcharge capacity, 196,221 acre-ft (242 hm³), maximum pool elevation. Figures given herein represent contents above elevation 3,139.75 ft (956.996 m). Water is stored for irrigation.

COOPERATION.--Records of elevations, contents, and diversion to Angostura project furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 145,200 acre-ft (179 hm³) June 18, 1962, elevation, 3,189.00 ft (972.007 m); minimum observed since normal operating level reached, 45,350 acre-ft (55.9 hm³) Sept. 28, 1960, elevation, 3,162.90 ft (964.052 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 141,025 acre-ft (174 hm³) May 20, elevation, 3,189.95 ft (972.297 m); minimum, 61,947 acre-ft (76.4 hm³) Oct. 1, elevation, 3,170.27 ft (966.298 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents	†Diversions
Sept. 30	3170.19	61698		
Oct. 31	3170.82	63660	+1962	
Nov. 30	3171.21	64891	+1231	
Dec. 30	3171.75	66616	+1725	
CAL YR 1977			-12331	40148
Jan. 31	3172.24	68201	+1585	
Feb. 28	3172.70	69708	+1507	
Mar. 31	3185.33	118366	+49158	
Apr. 30	3186.28	123233	+4367	
May 31	3187.36	128323	+5090	3438
June 30	3187.08	126983	-1340	6834
July 31	3187.23	127701	+718	16838
Aug. 31	3186.17	122719	-4982	12635
Sept. 30	3184.86	116742	-5977	6035
WTR YR 1978			+55044	45780

† Diversions from Angostura irrigation project.

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD

LOCATION.--Lat 43°20'42", long 103°26'12", in NE¼NW¼NW¼ sec.20, T.8 S., R.6 E., Fall River County, Hydrologic Unit 10120109, on right bank 800 ft (244 m) downstream from Angostura Dam, 4.8 mi (7.7 km) upstream from Fall River and 6.5 mi (10.5 km) southeast of Hot Springs.

DRAINAGE AREA.--9,100 mi² (23,600 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 3,058.02 ft (932.084 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 17, 1946, nonrecording gage and Oct. 17, 1946, to July 7, 1953, water-stage recorder at site 4.8 mi (7.7 km) downstream at different datum.

REMARKS.--Records fair. Flow completely regulated by Angostura Reservoir 800 ft (244 m) upstream since October 1949 (see station 06401000).

AVERAGE DISCHARGE.--33 years, 78.5 ft³/s (2.223 m³/s), 56,870 acre-ft/yr (70.1 hm³/yr); median of yearly mean discharges, 52 ft³/s (1.47 m³/s), 37,700 acre-ft/yr (46 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,300 ft³/s (858 m³/s) May 20, 1978, gage height, 15.97 ft (4.868 m), from rating curve extended above 12,000 ft³/s (340 m³/s); no flow Oct. 9, 1949, to Feb. 5, 1950, Apr. 28, Aug. 26, 30, 1951.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,300 ft³/s (858 m³/s) May 20, gage height, 15.97 ft (4.868 m); minimum daily, 0.78 ft³/s (0.022 m³/s) Oct. 8.

REVISIONS.--The maximum discharges for some water years have been revised, as shown in the following table. They supersede figures published in WSP 1917, 2117, and the report for 1971.

Water year	Date	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1962	June 18, 1962	20500	581	13.81	4.209
1967	June 17, 1967	10300	292	10.88	3.316
1971	May 25, 1971	17900	507	13.18	4.017

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	1.5	1.1	1.0	1.0	1.2	2.0	1.5	492	2.3	721	1.6
2	1.0	1.4	1.0	1.0	1.0	1.2	1.9	1.6	605	2.3	770	1.6
3	.98	1.5	1.0	1.0	1.0	1.2	1.8	1.5	480	1.8	268	1.5
4	.96	1.5	1.1	1.0	.96	1.3	1.8	1.8	362	1.9	161	1.4
5	.96	1.5	1.2	1.0	1.0	1.3	1.6	2.3	370	1.7	160	1.4
6	.94	1.5	1.4	.96	.97	1.3	1.5	3.1	324	6.1	160	1.6
7	.84	1.5	1.1	.90	1.0	1.3	1.7	3.0	153	2.0	162	1.7
8	.78	1.9	1.1	.90	1.0	1.8	1.6	2.7	290	1.9	163	1.7
9	.84	1.6	1.6	.90	.96	3.6	1.6	573	359	2.1	118	1.7
10	.94	1.6	1.4	.90	1.0	1.6	1.8	1290	229	1.9	2.7	1.7
11	.84	1.6	1.1	.90	1.0	1.6	1.7	1950	169	2.4	2.4	1.7
12	.83	1.6	.88	.93	1.1	1.6	1.6	1330	161	1.7	2.2	1.8
13	.79	1.6	.96	.89	1.1	1.6	1.6	924	150	1.7	2.4	1.6
14	1.2	1.6	.96	.91	1.2	1.6	1.7	632	149	1.6	2.3	1.6
15	1.2	1.6	.96	.99	1.2	1.6	1.8	339	132	1.7	2.5	1.5
16	1.2	1.6	.88	1.2	1.2	1.6	1.7	336	89	2.4	2.2	1.6
17	1.2	1.6	.91	1.1	1.1	1.7	1.6	249	91	1.9	2.4	1.7
18	1.2	1.6	.96	1.1	1.1	1.8	1.6	760	92	2.0	2.4	1.6
19	1.2	1.3	.92	1.1	1.1	1.6	1.6	7220	84	1.8	2.5	1.7
20	1.1	1.3	.95	1.1	1.1	1.6	1.7	19600	84	1.8	2.2	1.6
21	1.2	1.3	1.0	1.1	1.1	1.8	3.0	18600	81	2.3	2.1	1.6
22	1.3	1.4	1.0	1.1	1.1	1.9	1.5	4240	77	1.5	2.4	1.4
23	1.3	1.5	1.0	1.0	2.0	2.2	1.5	1830	57	1.3	2.1	1.4
24	1.3	1.4	1.2	1.0	1.5	2.5	1.4	1270	2.8	38	1.9	1.3
25	1.3	1.2	1.3	1.1	1.3	2.5	1.5	989	5.5	674	1.9	1.2
26	1.3	1.2	1.1	1.1	1.2	2.5	1.4	831	6.6	1020	1.9	1.0
27	1.3	1.1	1.1	1.1	1.2	2.3	1.9	592	16	826	2.0	1.2
28	1.3	1.0	1.1	1.0	1.2	2.2	1.5	690	3.2	237	1.9	1.2
29	1.3	1.1	1.0	1.0	---	2.1	1.6	1950	6.0	193	1.8	1.3
30	1.2	1.1	1.1	.99	---	1.9	1.6	1360	2.5	108	1.8	1.4
31	1.4	---	1.0	1.0	---	2.0	---	713	---	275	1.7	---
TOTAL	34.50	43.2	33.38	31.27	31.69	56.0	50.8	68285.5	5122.6	3419.1	2730.7	45.3
MEAN	1.11	1.44	1.08	1.01	1.13	1.81	1.69	2203	171	110	88.1	1.51
MAX	1.4	1.9	1.6	1.2	2.0	3.6	3.0	19600	605	1020	770	1.8
MIN	.78	1.0	.88	.89	.96	1.2	1.4	1.5	2.5	1.3	1.7	1.0
AC-FT	68	86	66	62	63	111	101	135400	10160	6780	5420	90

CAL YR 1977 TOTAL 427.78 MEAN 1.17 MAX 33 MIN .62 AC-FT 849
WTR YR 1978 TOTAL 79884.04 MEAN 219 MAX 19600 MIN .78 AC-FT 158400

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to September 1970, October 1971 to current year.
WATER TEMPERATURES: October 1968 to September 1970, October 1971 to September 1973, October 1975 to September 1976, October 1977 to September 1978.

REMARKS.--No observers' samples available for a few scattered days. Specific conductance estimated on basis of discharge-conductance ratio.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,750 micromhos Jan. 13, 1975; minimum daily, 575 micromhos July 5, 1977.
WATER TEMPERATURES: Maximum daily, 31.0°C July 6, 10, 18, 23, 1976; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,680 micromhos Jan. 5; minimum daily, 1,280 micromhos June 2.
WATER TEMPERATURES: Maximum daily, 30.0°C July 13; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT										
05...	1000	.92	2360	7.3	10.0	1000	870	260	94	180
25...	1715	1.1	2600	8.2	13.5	1000	910	270	88	190
NOV										
21...	1700	1.3	2150	8.2	2.0	1100	940	280	93	200
DEC										
20...	1500	.87	2700	7.9	3.0	1100	940	280	94	200
FEB										
14...	1600	1.2	2900	8.1	.5	1100	980	290	95	200
APR										
24...	1500	1.4	2100	8.3	21.0	830	710	200	81	170
MAY										
10...	1215	1010	2600	8.0	11.5	870	760	240	66	160
21...	1230	17500	2080	8.1	14.0	670	560	180	53	150
JUN										
12...	1400	160	1680	8.0	17.5	750	580	160	85	180
20...	1300	83	1540	8.2	19.0	480	370	130	38	130
JUL										
18...	1545	1.6	2150	8.1	28.0	750	630	190	68	160
AUG										
22...	1015	2.5	2240	7.7	18.5	690	550	180	59	170
SEP										
20...	1015	1.8	2030	7.9	14.0	800	650	210	68	170

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT									
05...	27	2.4	11	200	0	160	1100	120	.7
25...	28	2.6	12	160	0	130	1100	130	.7
NOV									
21...	28	2.6	11	170	0	140	1100	130	.7
DEC									
20...	28	2.6	12	180	0	150	1200	120	.7
FEB									
14...	28	2.6	11	170	0	140	1200	140	.7
APR									
24...	30	2.6	11	150	0	120	980	100	.6
MAY									
10...	28	2.4	10	130	0	110	930	110	.6
21...	33	2.5	7.8	130	0	110	750	79	.6
JUN									
12...	34	2.9	10	210	0	170	840	27	.5
20...	37	2.6	7.9	130	0	110	540	50	.6
JUL									
18...	31	2.5	11	150	0	120	810	92	.6
AUG									
22...	34	2.8	10	170	0	140	760	83	.6
SEP									
20...	31	2.6	11	180	0	148	860	79	.6

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2380	2380	2450	2650	2380	2500	2650	2240	1420	2080	1650	230
2	2350	2420	2450	2550	2360	2400	2580	2280	1280	1920	1650	2050
3	2350	2450	2450	2600	2320	2540	2590	2270	1480	2620	1700	2050
4	2360	2400	2450	2590	2280	2470	2510	2230	1460	1970	1620	2120
5	2380	2450	2400	2600	2400	2380	2410	2270	1420	2150	1670	2150
6	2380	2420	2400	2590	2330	2450	2500	2220	1320	2180	2270	2140
7	2400	2400	2350	2550	2370	2450	2510	2210	1410	2150	1820	2150
8	2350	2350	2450	2580	2400	2400	2590	2240	1380	2140	1720	2160
9	2350	2450	2450	2540	2460	2450	2440	2150	1360	2080	1630	2150
10	2400	2420	2450	2570	2420	2400	2500	2160	1380	2220	2070	2150
11	2380	2400	2400	2600	2420	2470	2440	2170	1480	2170	2020	2130
12	2400	2420	2550	2580	2350	2450	2400	2150	1390	2250	1930	2220
13	2420	2400	2400	2600	2300	2430	2420	2140	1300	2410	2080	2250
14	2420	2420	2350	2600	2440	2450	2470	2130	1380	2390	2000	2200
15	2400	2450	2400	2590	2350	2500	2350	2140	1330	2330	2140	2220
16	2400	2450	2420	2600	2370	2500	2320	2150	1400	2220	2000	2230
17	2400	2450	2450	2580	2380	2430	2280	2140	1410	2720	2080	2150
18	2420	2450	2500	2550	2400	2420	2400	2050	1380	2500	2360	2120
19	2420	2420	2500	2550	2350	2400	2330	2080	1380	2380	1980	2130
20	2400	2450	2520	2580	2440	2450	2310	2050	1380	2150	2000	2180
21	2420	2350	2500	2600	2340	2450	2300	1900	1460	2150	1970	2250
22	2400	2000	2500	2520	2340	2430	2270	1360	1460	2350	1980	2150
23	2450	2250	2400	2600	2320	2450	2280	1420	1440	2450	2000	2230
24	2400	2350	2500	2580	1980	2500	2270	1580	1530	2000	1960	2150
25	2450	2420	2150	2550	2200	2450	2320	1360	1480	1820	2170	2250
26	2420	2300	2400	2550	2340	2530	2310	1380	1520	1850	2120	2290
27	2400	2380	2150	2500	2450	2500	2200	1430	1520	1840	2050	2200
28	2400	2250	2450	2600	2480	2550	2350	1400	1540	1850	2070	2230
29	2400	2380	2500	2580	---	2500	2300	1300	1530	1870	2070	2230
30	2440	2420	2550	2600	---	2550	2310	1490	1540	1880	2080	2200
31	2450	---	2500	2600	---	2540	---	1360	---	1850	2100	---
MEAN	2400	2390	2430	2580	2360	2460	2400	1920	1430	2160	1970	2110

06401500 CHEYENNE RIVER BELOW ANGOSTURA DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT									
05...	9.1	1870	2.54	4.65	.11	.01	.01	.02	160
25...	7.1	1880	2.56	5.58	.10	.02	.01	.00	190
NOV									
21...	8.6	1910	2.60	6.70	.20	.02	.00	.03	0
DEC									
20...	9.2	2010	2.73	4.72	.19	.02	.00	.00	200
FEB									
14...	8.9	2030	2.76	6.58	.22	.02	.01	.01	180
APR									
24...	6.3	1620	2.20	6.12	.11	.03	.00	.00	160
MAY									
10...	6.4	1590	2.16	4340	.26	.01	.00	.00	190
21...	6.3	1290	1.75	61000	.30	.07	.00	.00	160
JUN									
12...	5.0	1440	1.96	622	6.8	.28	.00	.01	200
20...	6.4	968	1.32	217	.31	.00	.01	.00	120
JUL									
18...	12	1420	1.93	6.13	.11	.01	.02	.01	130
AUG									
22...	8.9	1360	1.85	9.18	.26	.01	.00	.01	140
SEP									
20...	11	1500	2.04	7.29	.30	.01	.00	.00	160

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	6.0	6.0	1.0	1.0	4.0	8.0	15.0	13.0	26.0	21.0	25.0
2	14.0	10.5	5.0	1.0	2.0	5.0	17.0	16.0	14.0	24.0	19.5	28.0
3	15.0	11.5	---	1.0	3.5	2.0	15.0	16.0	14.0	24.0	22.0	28.0
4	14.0	10.0	7.0	1.0	2.0	3.0	14.0	10.0	16.0	20.0	23.0	26.0
5	12.0	13.5	---	2.5	1.0	3.0	16.0	13.0	14.0	20.0	23.0	25.0
6	14.0	11.0	---	3.5	4.0	5.0	17.0	10.0	15.0	20.0	23.0	25.0
7	13.0	9.0	5.0	3.0	3.0	5.0	13.0	10.0	15.0	20.0	22.0	27.0
8	12.0	8.5	2.5	1.0	2.0	10.0	12.0	15.0	15.0	26.0	25.0	25.0
9	12.0	5.0	2.0	1.0	1.0	6.0	11.0	13.0	15.0	20.0	24.0	18.0
10	12.0	9.0	3.0	2.0	1.0	9.0	12.5	11.0	17.0	26.0	25.5	20.0
11	13.0	10.0	3.5	2.0	1.0	2.0	14.5	12.0	16.0	18.0	26.0	20.0
12	13.0	10.5	4.0	3.0	1.0	11.0	12.0	13.0	15.0	26.0	22.0	17.0
13	14.0	10.0	4.5	2.0	.0	4.0	10.5	13.0	16.0	30.0	28.0	19.5
14	13.0	10.5	7.0	2.0	.5	9.0	9.0	10.0	15.0	28.5	22.0	21.0
15	11.0	---	6.0	2.0	2.0	---	8.0	11.0	18.0	22.5	23.0	19.0
16	18.0	---	6.0	1.0	2.5	1.0	9.0	13.0	16.0	29.0	21.0	20.0
17	14.0	7.5	2.0	1.0	.0	13.0	10.0	10.0	17.0	29.5	25.0	18.0
18	16.0	---	4.0	1.0	.0	11.0	8.0	14.0	23.0	28.0	20.0	17.5
19	16.5	5.0	---	.0	2.0	6.0	12.0	12.0	22.0	21.0	21.5	12.0
20	14.0	3.5	3.0	1.0	2.0	13.0	18.0	12.0	22.0	19.0	25.0	17.0
21	11.5	4.0	---	1.0	4.0	14.0	15.0	12.0	19.0	17.0	28.0	19.5
22	14.0	4.5	4.5	1.0	5.0	10.0	15.0	15.0	20.0	20.0	21.0	13.5
23	15.0	4.0	4.0	1.0	7.0	6.0	13.0	13.0	25.0	25.0	20.0	21.0
24	15.0	3.0	3.0	.0	5.0	8.0	15.0	14.0	18.0	27.0	28.0	21.0
25	19.5	4.0	3.0	1.0	---	8.0	18.5	13.0	23.0	21.0	26.5	22.5
26	16.0	6.0	4.0	2.5	6.0	15.0	18.0	14.0	20.0	22.0	26.5	22.0
27	14.5	5.5	3.5	1.0	3.0	14.5	15.0	13.0	25.0	22.0	25.0	19.0
28	14.5	7.5	4.0	.0	4.0	16.5	14.0	13.0	29.0	21.0	24.0	21.0
29	---	4.0	---	.0	---	20.0	11.0	14.0	25.0	22.0	20.5	19.0
30	14.5	7.0	1.0	2.0	---	19.0	10.0	13.0	27.0	21.0	25.0	15.0
31	7.5	---	1.0	.0	---	18.5	---	13.0	---	21.0	20.0	---
MEAN	14.0	7.5	4.0	1.5	2.5	9.0	13.0	13.0	18.5	23.0	23.5	20.5

06402000 FALL RIVER AT HOT SPRINGS, SD

LOCATION.--Lat 43°25'50", long 103°28'33", in NW¼NW¼ sec.24, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, on left bank at intersection of River Street and University Avenue in Hot Springs and 6.0 mi (9.7 km) upstream from mouth.

DRAINAGE AREA.--137 mi^2 (355 km^2).

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October 1937, published in WSP 1309.

REVISED RECORDS.--WSP 1279: 1938, 1941(M), 1947(M). WSP 1729: 1959(M).

GAGE.--Water-stage recorder. Datum of gage is 3,413.20 ft (1,040.343 m) National Geodetic Vertical Datum of 1929. Prior to June 2, 1939, nonrecording gage at site 300 ft (91 m) upstream at datum 3.00 ft (0.914 m) higher.

REMARKS.--Records good. Flow regulated by Coldbrook Reservoir, capacity, 7,200 acre-ft (8.88 hm^3), beginning September 1952, and Cottonwood Springs Lake, capacity, 8,385 acre-ft (10.3 hm^3) since June 1969. Some diversion above station for municipal supply of Hot Springs. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 25.4 ft^3/s (0.719 m^3/s), 18,400 acre-ft/yr (22.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,100 ft^3/s (371 m^3/s) Sept. 4, 1938, gage height, 18.4 ft (5.61 m), site and datum then in use, from rating curve extended above 51 ft^3/s (1.44 m^3/s) on basis of weir formula and slope-area measurement of peak flow; minimum, 4.0 ft^3/s (0.11 m^3/s) Sept. 23, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 229 ft^3/s (6.49 m^3/s) Mar. 18, gage height, 2.82 ft (0.860 m); minimum daily, 17 ft^3/s (0.48 m^3/s) Sept. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	23	21	22	23	23	23	27	23	21	21	18
2	21	23	21	21	23	22	23	27	23	21	23	18
3	22	23	21	20	23	22	24	32	23	21	23	18
4	22	23	21	21	23	22	23	27	23	21	22	18
5	22	23	21	21	23	23	23	25	22	20	22	18
6	22	23	20	20	23	22	23	32	22	22	22	18
7	22	23	21	20	23	22	23	26	23	22	21	18
8	24	25	21	20	23	24	24	25	23	22	23	17
9	25	23	21	21	23	24	24	24	23	24	24	18
10	23	23	22	20	23	24	24	24	23	23	23	18
11	22	23	22	20	23	29	23	24	24	23	23	19
12	22	23	21	21	23	25	24	24	24	22	23	19
13	22	24	22	21	23	24	24	25	22	21	24	19
14	22	23	21	20	23	23	23	25	23	21	25	18
15	22	23	21	21	23	23	25	25	23	22	30	19
16	22	22	22	21	23	22	24	24	23	22	24	19
17	22	22	21	22	23	22	24	29	26	22	25	20
18	22	21	21	21	23	30	23	27	23	20	25	20
19	22	23	22	21	23	75	23	25	22	22	25	20
20	22	22	22	21	22	32	24	24	23	23	24	20
21	23	22	21	21	23	26	23	24	21	31	23	20
22	23	22	22	21	24	24	24	25	22	23	25	21
23	23	23	22	21	26	24	24	25	24	22	25	22
24	23	22	22	21	23	24	23	25	23	21	25	23
25	23	22	22	21	22	23	23	25	23	20	24	23
26	23	22	21	21	23	23	20	25	22	19	25	23
27	23	22	21	22	23	23	23	30	22	20	28	21
28	23	22	21	22	22	23	29	25	20	20	22	22
29	23	21	21	22	---	22	26	25	20	22	19	22
30	23	21	22	22	---	22	27	25	21	22	19	22
31	23	---	22	23	---	21	---	25	---	24	18	---
TOTAL	698	677	662	652	645	788	713	800	679	679	725	591
MEAN	22.5	22.6	21.4	21.0	23.0	25.4	23.8	25.8	22.6	21.9	23.4	19.7
MAX	25	25	22	23	26	75	29	32	26	31	30	23
MIN	21	21	20	20	22	21	20	24	20	19	18	17
AC-FT	1380	1340	1310	1290	1280	1560	1410	1590	1350	1350	1440	1170

CAL YR 1977 TOTAL 7831 MEAN 21.5 MAX 38 MIN 18 AC-FT 15530
WTR YR 1978 TOTAL 8309 MEAN 22.8 MAX 75 MIN 17 AC-FT 16480

06402500 BEAVER CREEK NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°27'56", long 103°18'22", in SE¼SE¼ sec.5, T.7 S., R.7 E., Fall River County, Hydrologic Unit 10120109, on left bank 1.5 mi (2.4 km) south of Buffalo Gap and 4.5 mi (7.2 km) upstream from mouth.

DRAINAGE AREA.--130 mi² (340 km²), approximately.

PERIOD OF RECORD.--October 1937 to current year. Monthly discharge only for October, November, 1937, published in WSP 1309.

REVISED RECORDS.--WSP 956: 1941. WSP 1309: 1939-40(M), 1947(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,150 ft (960 m), from topographic map. Prior to June 20, 1939, nonrecording gage at site 0.8 mi (1.3 km) downstream at different datum.

REMARKS.--Records good except those for winter periods, which are poor. Nearly all flow is diverted above station during irrigation season. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--41 years, 7.03 ft³/s (0.199 m³/s), 5,090 acre-ft/yr (6.28 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,700 ft³/s (331 m³/s) Sept. 4, 1938, gage height, 16.46 ft (5.017 m), site and datum then in use, from rating curve extended above 11 ft³/s (0.31 m³/s) on basis of slope-area measurement of peak flow; no flow at times in some years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in 1927 reached a stage of 18.0 ft (5.49 m), former site and datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 24 ft³/s (4.47 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 9	2200	ice jam		*6.43	1.960	Mar. 10	0100	*157	4.45	6.16	1.878

Minimum daily discharge, 0.30 ft³/s (0.008 m³/s) July 27, Aug. 13, 25, 26.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.8	12	12	12	9.0	9.5	2.6	7.9	1.5	3.4	5.1	.34
2	1.4	13	12	12	9.0	9.5	2.2	4.5	2.0	3.0	5.6	.34
3	1.4	13	12	12	9.0	9.5	5.4	1.5	2.5	1.6	5.5	1.2
4	1.5	13	12	12	10	9.5	8.2	5.7	2.7	1.2	3.2	4.0
5	1.5	14	12	13	10	10	9.3	8.5	2.7	.90	3.0	4.1
6	1.6	14	12	13	10	11	8.0	8.7	2.7	.94	3.0	4.1
7	1.7	14	12	13	10	13	6.7	12	2.7	.94	2.9	4.1
8	1.7	14	10	12	10	15	5.7	8.8	3.2	.82	2.9	3.9
9	1.7	14	10	11	10	50	4.6	8.3	3.7	.85	2.7	3.9
10	1.8	14	11	10	10	61	4.8	7.9	5.0	.90	.62	3.9
11	1.6	12	12	11	10	32	4.0	9.2	6.3	.90	.42	4.1
12	1.4	12	12	12	10	23	4.0	9.3	6.3	1.0	.38	4.2
13	1.4	12	11	12	9.5	17	4.1	9.2	6.2	.90	.30	4.2
14	1.3	12	11	12	9.5	16	4.4	9.2	6.1	.90	.38	4.4
15	5.5	12	12	12	9.5	15	5.7	9.6	5.8	.90	.94	4.3
16	8.4	12	12	12	9.5	14	5.1	11	5.9	.90	.50	4.8
17	8.4	12	11	12	9.5	14	4.2	9.8	6.5	1.0	.38	5.0
18	12	12	11	12	9.5	15	1.3	9.0	6.1	1.0	.34	5.1
19	13	13	11	11	10	13	1.2	8.8	5.7	1.0	.34	5.5
20	14	13	11	11	10	13	1.1	10	5.8	1.0	.66	6.0
21	14	12	12	12	11	13	1.2	11	5.7	1.8	1.3	6.1
22	14	10	12	12	11	12	1.2	9.8	5.3	1.4	1.2	7.0
23	14	10	12	12	11	13	1.5	8.1	5.5	1.1	.42	7.2
24	14	12	13	12	10	13	1.2	8.3	5.7	.86	.34	8.0
25	11	12	13	11	10	13	1.8	4.8	5.7	.76	.30	8.1
26	3.5	12	13	10	10	13	1.6	1.4	5.5	.68	.30	8.4
27	3.4	12	13	10	10	12	1.6	1.5	5.5	.30	.38	8.7
28	8.2	11	12	10	9.5	12	1.8	1.9	3.7	.34	.46	7.2
29	12	11	12	10	---	12	2.4	1.7	2.8	.50	.46	.50
30	12	12	12	10	---	11	5.8	1.6	3.5	2.0	.42	.50
31	13	---	12	10	---	6.3	---	1.5	---	3.2	.38	---
TOTAL	202.2	371	365	356	276.5	500.3	112.7	220.5	138.3	36.99	45.12	139.18
MEAN	6.52	12.4	11.8	11.5	9.88	16.1	3.76	7.11	4.61	1.19	1.46	4.64
MAX	14	14	13	13	11	61	9.3	12	6.5	3.4	5.6	8.7
MIN	1.3	10	10	10	9.0	6.3	1.1	1.4	1.5	.30	.30	.34
AC-FT	401	736	724	706	548	992	224	437	274	73	89	276

CAL YR 1977 TOTAL 2464.12 MEAN 6.75 MAX 14 MIN .11 AC-FT 4890
WTR YR 1978 TOTAL 2763.79 MEAN 7.57 MAX 61 MIN .30 AC-FT 5480

06402600 CHEYENNE RIVER NEAR BUFFALO GAP, SD

LOCATION.--Lat 43°30'05", long 103°04'23", in SW¼NE¼ sec.29, T.6 S., R.9 E., Custer County, Hydrologic Unit 10120109, on right bank at right end of highway bridge, 5.8 mi (9.3 km) upstream from Cottonwood Creek and 12 mi (19 km) east of Buffalo Gap.

DRAINAGE AREA.--9,810 mi^2 (25,410 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1968 to current year.

REVISED RECORDS.--WRD SD-76-1: 1970-75.

GAGE.--Water-stage recorder. Datum of gage is 2,811.45 ft (856.930 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Angostura Reservoir 34 mi (55 km) upstream (see station 06401000).

AVERAGE DISCHARGE.--10 years, 112 ft^3/s (3.172 m^3/s), 81,140 acre-ft/yr (100 hm^3/yr); median of yearly mean discharges, 74 ft^3/s (2.10 m^3/s), 53,600 acre-ft/yr (66 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 25,000 ft^3/s (708 m^3/s) May 21, 1978, gage height, 13.15 ft (4.008 m); minimum daily, 13 ft^3/s (0.37 m^3/s) July 25, 1976.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 25,000 ft^3/s (708 m^3/s) May 21, gage height, 13.15 ft (4.008 m); minimum daily, 25 ft^3/s (0.71 m^3/s) Dec. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	136	75	75	28	40	55	50	42	503	55	429	65
2	91	75	66	30	38	55	46	42	510	50	849	62
3	71	75	58	30	40	55	52	34	500	41	608	61
4	71	73	50	35	45	55	54	37	410	39	212	64
5	71	80	44	40	55	60	52	52	291	38	194	65
6	71	80	36	40	55	65	50	44	320	48	194	61
7	73	78	32	40	55	70	48	82	249	51	183	57
8	75	78	28	40	55	75	48	144	183	44	168	53
9	73	77	25	40	55	80	42	87	296	44	175	56
10	73	76	27	40	55	90	42	737	304	48	144	57
11	73	76	30	40	55	100	41	1270	191	41	76	62
12	73	76	32	45	55	200	42	1870	183	44	59	65
13	73	76	32	50	55	350	39	809	144	43	50	67
14	73	75	32	50	55	200	42	949	163	37	55	67
15	73	75	32	50	55	146	56	436	165	39	83	65
16	71	75	30	50	55	144	56	372	149	39	89	64
17	73	75	30	48	55	116	52	279	149	41	70	64
18	78	75	28	45	55	178	54	249	133	40	65	67
19	80	70	28	35	55	258	50	1240	131	47	64	67
20	80	60	28	30	55	188	50	10500	124	49	62	67
21	80	55	30	30	60	131	48	20600	120	82	60	67
22	80	55	32	35	60	94	48	7320	116	137	60	64
23	71	55	34	40	70	80	50	2630	119	79	62	57
24	71	55	32	40	70	89	42	1600	122	65	59	56
25	73	60	30	40	65	75	30	1210	74	77	62	55
26	69	60	30	40	60	71	32	934	60	896	68	56
27	58	60	30	40	55	66	30	577	56	998	64	53
28	58	65	30	40	55	64	37	662	55	522	85	56
29	69	75	30	40	---	60	42	1330	59	224	74	57
30	75	87	28	40	---	60	42	2270	53	215	68	52
31	75	---	28	40	---	58	---	758	---	160	64	---
TOTAL	2331	2127	1077	1231	1538	3388	1367	59166	5932	4333	4555	1829
MEAN	75.2	70.9	34.7	39.7	54.9	109	45.6	1909	198	140	147	61.0
MAX	136	87	75	50	70	350	56	20600	510	998	849	67
MIN	58	55	25	28	38	55	30	34	53	37	50	52
AC-FT	4620	4220	2140	2440	3050	6720	2710	117400	11770	8590	9030	3630

CAL YR 1977 TOTAL 21084 MEAN 57.8 MAX 880 MIN 10 AC-FT 41820
WTR YR 1978 TOTAL 88874 MEAN 243 MAX 20600 MIN 25 AC-FT 176300

06402600 CHEYENNE RIVER NEAR BUFFALO GAP, SD--Continued

WATER-QUALITY RECORDS

LOCATION.--Samples collected 6.0 mi (9.6 km) downstream from discharge station.

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,140 micromhos Jan. 13, 1971; minimum daily, 1,120 micromhos Mar. 11, 12, 1978.
WATER TEMPERATURES: Maximum daily, 32.0°C on several days during July to August 1969; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,920 micromhos Nov. 21; minimum daily, 1,120 micromhos Mar. 11, 12.
WATER TEMPERATURES: Maximum daily, 24.5°C Aug. 22; minimum daily, 0.0°C on Many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT										
05...	1415	71	2600	8.1	11.5	1000	860	270	88	240
25...	0945	72	2250	8.1	8.5	1100	920	300	86	200
NOV										
21...	1130	53	3200	8.3	.5	1300	1000	340	100	260
DEC										
21...	1215	31	2800	7.9	.0	1200	960	310	94	220
FEB										
15...	1410	54	2800	7.6	.0	1000	830	280	83	180
APR										
24...	1000	51	2450	8.2	12.5	1000	840	260	89	210
MAY										
10...	1615	901	2310	8.0	17.5	860	740	230	69	170
21...	1100	24600	2240	7.9	14.0	740	640	200	59	180
22...	1315	10100	1660	7.9	18.0	560	460	150	44	130
JUN										
20...	1030	125	2130	8.2	21.0	770	610	210	60	170
JUL										
19...	1330	46	2570	7.8	25.5	930	790	240	80	250
AUG										
23...	1130	63	3080	8.0	23.0	880	730	230	75	240
SEP										
20...	1300	66	2700	8.3	13.0	940	780	250	77	220

06402600 CHEYENNE RIVER NEAR BUFFALO GAP, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT									
05...	33	3.2	19	220	0	180	1100	140	.6
25...	28	2.6	18	220	0	180	1100	130	.6
NOV									
21...	31	3.2	17	280	0	230	1300	150	.7
DEC									
21...	29	2.8	17	250	0	210	1200	130	.6
FEB									
15...	27	2.4	14	260	0	210	980	120	.6
APR									
24...	31	2.9	16	210	0	170	1100	130	.6
MAY									
10...	30	2.5	11	140	0	110	920	100	.6
21...	34	2.9	8.5	130	0	110	880	93	.6
22...	33	2.4	7.8	120	0	98	630	62	.6
JUN									
20...	32	2.7	12	200	0	160	790	87	.6
JUL									
19...	36	3.6	16	170	0	140	1100	140	.7
AUG									
23...	37	3.5	17	190	0	160	1000	120	.6
SEP									
20...	33	3.1	17	200	0	164	1000	120	.6

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2450	2620	2400	2670	2500	2650	2520	2500	1600	2350	2070	2340
2	2440	2550	2550	2550	2490	2650	2530	2450	1700	2420	1750	2330
3	2440	2600	2600	2700	2660	2550	2440	2410	1550	2440	1730	2400
4	2550	2620	2590	2680	2550	2700	2580	2500	1700	2500	1780	2330
5	2580	2600	2600	2600	2460	2700	2580	2430	1550	2560	1960	2350
6	2570	2650	2710	2600	2440	2450	2540	2420	1650	2550	1960	2420
7	2550	2600	2620	2500	2440	2450	2550	2530	1650	2500	1950	2400
8	2550	2450	2740	2510	2460	2450	2510	2530	1750	2450	1950	2420
9	2580	2580	2640	2800	2450	2250	2510	2170	1580	2420	1950	2500
10	2550	2550	2620	2620	2460	1520	2470	2140	1650	2450	1950	2500
11	2480	2600	2740	2750	2440	1120	2500	2160	1850	2440	2200	2500
12	2550	2620	2490	2540	2450	1120	2500	2170	1850	2450	2020	2400
13	2550	2620	2510	2500	2490	1300	2480	2220	1850	2490	2370	2400
14	2550	2600	2410	2540	2610	1340	2450	2190	1850	2500	2420	2400
15	2550	2600	2410	2550	2690	1430	2440	2230	1850	2500	2320	2400
16	2550	2600	2450	2550	2700	1750	2470	2320	1850	2500	2300	2380
17	2550	2500	2400	2610	2800	1800	2480	2270	1950	2500	2310	2420
18	2550	2500	2550	2780	2590	1800	2480	2130	1950	2500	2280	2430
19	2500	2520	2540	2600	2600	1640	2540	2150	2020	2530	2350	2400
20	2530	2650	2490	2580	2440	1570	2600	2140	1950	2500	2330	2420
21	2520	2920	2650	2650	2430	1810	2450	2060	2060	2000	2370	2400
22	2510	2900	2740	2600	2440	1960	2500	1700	2070	2000	2400	2450
23	2520	2780	2500	2550	2400	2280	2540	1600	2070	2100	2500	2400
24	2500	2620	2450	2450	2090	2320	2500	1580	2000	2250	2510	2460
25	2500	2700	2640	2480	2350	2200	2570	1600	2070	2300	2500	2450
26	2500	2650	2800	2540	2000	2420	2500	1600	2250	2350	1500	2550
27	2550	2580	2680	2550	2050	2580	2550	1600	2390	1950	2330	2480
28	2550	2480	2540	2550	2440	2580	2420	1700	2450	1950	1770	2390
29	2550	2500	2550	2510	---	2590	2460	1700	2350	1950	2330	2400
30	2520	2600	2600	2500	---	2600	2570	1580	2390	1900	2350	2400
31	2510	---	2600	2500	---	2600	---	1580	---	1920	2350	---
MEAN	2530	2610	2570	2580	2460	2100	2510	2080	1920	2330	2160	2420

06402600 CHEYENNE RIVER NEAR BUFFALO GAP, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)
OCT									
05...	13	1980	2.69	380	.90	.02	.00	.01	360
25...	12	1960	2.67	381	.76	.04	.01	.00	340
NOV									
21...	15	2330	3.17	333	1.4	.02	.00	.04	0
DEC									
21...	14	2120	2.88	177	1.6	.01	.00	.00	320
FEB									
15...	15	1810	2.46	264	1.7	.04	.02	.03	250
APR									
24...	8.1	1920	2.61	264	.43	.04	.00	.00	320
MAY									
10...	7.0	1580	2.15	3840	.29	.54	.01	.01	190
21...	6.3	1490	2.03	99000	.29	.14	.00	.01	180
22...	6.2	1090	1.48	29700	.34	.37	.00	.01	140
JUN									
20...	9.5	1440	1.96	486	.38	.01	.01	.00	230
JUL									
19...	8.7	1920	2.61	238	.10	.01	.02	.01	360
AUG									
23...	9.3	1790	2.43	304	.49	.01	.00	.00	340
SEP									
20...	11	1800	2.45	321	.80	.01	.01	1.6	340

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.0	5.5	1.0	.0	.0	.0	1.0	9.0	14.5	21.0	21.5	19.5
2	11.0	6.0	1.0	.0	.0	.0	1.0	14.0	14.0	22.0	19.0	19.0
3	11.0	7.5	1.0	.0	.0	.0	10.0	13.5	16.0	20.0	16.0	20.0
4	15.0	6.5	1.0	.0	.0	.0	10.0	12.5	11.0	20.0	17.5	23.0
5	15.0	8.0	.0	.0	.0	.0	15.0	11.0	11.5	19.5	19.0	16.5
6	10.5	9.0	.0	.0	.0	.0	11.0	9.0	16.0	16.0	19.5	17.5
7	11.5	12.0	.0	.0	.0	.0	9.0	9.0	15.0	15.0	20.0	17.0
8	9.5	5.5	.0	.0	.0	.0	9.0	9.0	14.0	20.0	18.0	15.5
9	9.0	2.0	.0	.0	.0	.0	7.5	8.0	16.0	17.0	19.0	15.5
10	7.0	2.5	.0	.0	.0	.0	7.5	18.0	17.0	17.5	22.0	19.5
11	5.0	5.0	.0	.0	.0	.0	5.5	9.5	15.5	17.0	22.0	19.0
12	6.0	5.0	.0	.0	.0	.0	7.5	13.0	16.0	18.5	23.0	13.5
13	6.0	7.0	.0	.0	.0	.0	7.0	11.0	16.0	19.5	22.0	12.0
14	11.0	6.0	.0	.0	.0	.0	8.0	13.0	19.0	18.5	22.0	12.0
15	12.0	8.0	.0	.0	.0	.0	8.0	13.0	20.0	23.0	20.0	14.0
16	8.0	5.0	.0	.0	.0	.0	7.0	17.5	18.0	21.5	21.0	14.0
17	7.0	7.5	.0	.0	.0	.0	7.5	15.0	16.0	19.5	23.0	14.0
18	7.0	4.0	.0	.0	.0	.0	6.0	16.5	16.0	19.5	17.5	14.0
19	8.5	2.0	.0	.0	.0	.0	6.0	16.5	24.0	19.0	18.0	13.0
20	10.0	2.0	.0	.0	.0	.0	7.0	12.0	16.0	17.0	18.0	12.5
21	11.0	.5	.0	.0	.0	.0	8.0	12.0	17.0	13.5	19.0	12.0
22	9.0	2.0	.0	.0	.0	.0	7.0	13.0	19.5	13.0	24.5	10.0
23	10.0	2.0	.0	.0	.0	.0	7.5	10.0	20.5	18.0	23.0	12.0
24	8.5	.0	.0	.0	.0	.0	8.0	13.0	19.0	21.0	22.0	12.0
25	9.0	.0	.0	.0	.0	.0	8.0	13.0	19.0	23.0	21.0	15.5
26	9.5	.0	.0	.0	.0	.0	14.0	14.5	16.0	20.0	17.5	10.5
27	9.5	.0	.0	.0	.0	1.0	13.0	16.5	15.0	20.0	19.0	10.5
28	8.0	1.0	.0	.0	.0	1.0	14.0	13.0	18.5	21.0	16.5	9.0
29	10.0	1.0	.0	.0	---	1.0	13.0	13.0	20.0	20.5	18.0	8.0
30	10.5	1.0	.0	.0	---	1.0	11.0	11.0	21.0	21.0	17.5	8.0
31	9.0	---	.0	.0	---	---	---	17.0	---	20.0	18.0	---
MEAN	9.5	4.0	.0	.0	.0	.0	8.5	13.0	17.0	19.0	20.0	14.5

06404000 BATTLE CREEK NEAR KEYSTONE, SD

LOCATION.--Lat 43°52'21", long 103°20'10", in SW¼SW¼ sec.18, T.2 S., R.7 E., Pennington County, Hydrologic Unit 10120109, at right downstream end county highway bridge, 0.6 mi (1.0 km) downstream from Iron Creek and 4.5 mi (7.2 km) southeast of Keystone.

DRAINAGE AREA.--66 mi² (171 km²).

PERIOD OF RECORD.--July 1945 to July 1947, October 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,800 ft (1,160 m), from topographic map. Prior to Nov. 13, 1961, nonrecording gage at site 250 ft (76 m) downstream at different datum and Nov. 13 to Dec. 5, 1961, at same site at present datum. Dec. 6, 1961, to June 9, 1972, water-stage recorder at site 210 ft (64 m) downstream at present datum (destroyed by flood); June 10 to Nov. 20, 1972, nonrecording gage 180 ft (55 m) downstream at present datum; Nov. 21, 1972, to Nov. 27, 1973, water-stage recorder at present site and datum; Nov. 28, 1973, to Nov. 7, 1974, nonrecording gage 180 ft (55 m) downstream at present datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years (water years 1946, 1962-78), 10.4 ft³/s (0.295 m³/s), 7,530 acre-ft/yr (9.28 hm³/yr); median of yearly mean discharges, 10 ft³/s (0.28 m³/s), 7,200 acre-ft/yr (8.9 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,200 ft³/s (742 m³/s) June 9, 1972, gage height, 14.5 ft (4.42 m), from floodmarks, site then in use, from rating curve extended above 550 ft³/s (15.6 m³/s) on basis of slope-area measurement of peak flow; no flow for many days in 1961, 1962, 1970, 1974, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 1	0545	181	5.13	4.53	1.381	May 18	1330	*230	6.51	*4.68	1.426
May 4	1030	164	4.64	4.47	1.362	May 24	1400	122	3.46	4.31	1.314
May 9	2300	142	4.02	4.39	1.338	May 30	1300	117	3.31	4.29	1.308

Minimum daily discharge, 0.40 ft³/s (0.011 m³/s) Jan. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	1.3	1.9	.80	.60	.60	5.3	128	72	7.5	5.0	1.5
2	3.0	1.4	1.9	.90	.60	.60	5.5	70	66	9.1	6.5	1.1
3	2.5	1.4	1.9	1.0	.70	.60	4.5	46	57	7.9	5.5	.93
4	2.0	1.4	1.9	.90	.80	.60	2.8	129	54	6.3	5.0	.81
5	1.9	1.4	1.7	1.0	.90	.60	2.5	124	47	5.1	4.5	.70
6	1.7	1.5	1.5	1.0	1.0	.70	2.2	114	45	6.3	4.2	.70
7	1.7	1.6	1.7	1.0	1.0	1.0	1.9	103	40	8.3	4.0	.60
8	1.6	1.3	1.5	.90	1.0	1.5	1.9	93	37	7.1	3.7	.55
9	1.6	1.7	1.3	.80	1.0	3.0	1.8	108	33	6.7	4.0	.50
10	2.1	1.7	1.0	.70	1.0	5.0	2.0	129	29	6.7	3.8	.55
11	2.3	1.9	1.3	.70	1.0	10	1.9	117	26	6.0	3.5	.60
12	2.3	2.0	1.5	.60	1.0	8.0	1.9	93	24	5.1	3.3	.70
13	2.2	2.0	1.7	.50	1.0	6.0	1.8	75	22	4.6	3.0	.93
14	2.1	2.0	1.9	.40	1.0	5.5	2.0	65	21	4.1	3.3	.93
15	2.1	2.0	1.9	.50	1.0	5.0	3.8	54	19	3.9	3.5	.81
16	2.0	2.0	1.9	.50	1.0	4.7	4.7	46	18	3.4	4.0	.93
17	1.9	2.0	1.9	.50	1.0	4.5	4.4	41	21	3.1	3.5	.93
18	1.9	2.0	1.9	.50	1.0	5.5	4.4	144	17	2.9	2.7	1.5
19	1.8	2.0	1.7	.50	1.0	5.0	4.3	126	14	2.9	2.4	1.3
20	1.7	2.0	1.6	.50	1.0	4.8	3.6	97	12	3.1	2.1	.93
21	1.7	1.9	1.5	.60	1.0	4.7	3.1	79	11	6.0	1.9	.93
22	1.7	1.8	1.4	.70	1.1	4.7	3.1	68	11	8.0	1.6	.93
23	1.7	1.8	1.3	.70	1.5	4.6	3.0	105	10	7.2	1.8	.93
24	1.7	1.8	1.0	.70	1.3	4.1	2.9	108	11	6.2	1.6	.93
25	1.7	1.8	1.0	.70	1.1	5.0	2.7	85	9.5	6.0	1.3	.81
26	1.7	1.9	1.0	.60	1.0	5.6	2.7	68	8.3	5.0	1.5	.81
27	1.7	1.9	1.0	.70	.80	5.9	3.0	60	7.5	4.0	1.5	.81
28	1.6	1.9	1.0	.60	.60	6.1	6.4	70	7.1	4.0	1.5	.81
29	1.6	1.9	1.0	.60	---	6.0	25	58	6.7	4.0	1.3	.70
30	1.4	1.9	.90	.60	---	5.8	41	97	7.1	4.0	1.9	.70
31	1.3	---	.80	.60	---	6.0	---	85	---	4.3	1.8	---
TOTAL	58.7	53.2	45.50	21.30	27.00	131.70	156.1	2785	763.2	168.8	95.2	25.86
MEAN	1.89	1.77	1.47	.69	.96	4.25	5.20	89.8	25.4	5.45	3.07	.86
MAX	3.0	2.0	1.9	1.0	1.5	10	41	144	72	9.1	6.5	1.5
MIN	1.3	1.3	.80	.40	.60	.60	1.8	41	6.7	2.9	1.3	.50
AC-FT	116	106	90	42	54	261	310	5520	1510	335	189	51

CAL YR 1977 TOTAL 1021.60 MEAN 2.80 MAX 22 MIN .20 AC-FT 2030
WTR YR 1978 TOTAL 4331.56 MEAN 11.9 MAX 144 MIN .40 AC-FT 8590

06404998 GRACE COOLIDGE CREEK NEAR GAME LODGE, NEAR CUSTER, SD

LOCATION.--Lat 43°45'40", long 103°21'49", in SW¼NE¼ sec.26, T.3 S., R.6 E., Custer County, Hydrologic Unit 10120109, on right bank 0.3 mi (0.5 km) downstream from bridge on U.S. Highway 16A, 0.9 mi (1.5 km) east of Game Lodge, 1.5 mi (2.4 km) southwest of junction of State Highway 36 and U.S. Highway 16A, and 11.5 mi (18.5 km) east of Custer.

DRAINAGE AREA.--25.2 mi² (65.3 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 4,100 ft (1,250 m), from topographic map.

REMARKS.--Records fair except those for winter periods, which are poor. Considerable losses in sinkholes downstream from gage. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102 ft³/s (2.89 m³/s) May 18, 1978, gage height, 8.48 ft (2.585 m); maximum gage height, 9.38 ft (2.859 m) Jan. 29, 1978 (backwater from ice); no flow June 5-9, July 6, 8, 11, 19, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 10, 1972, reached a stage of 10.35 ft (3.155 m), from floodmarks, discharge, 709 ft³/s (20.1 m³/s) from slope-area measurement of peak flow.

Flood of June 15, 1976, reached a stage of 10.90 ft (3.322 m), from floodmarks, discharge, 980 ft³/s (27.8 m³/s) on basis of slope-area measurement of 10.35 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 25 ft³/s (0.71 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Jan. 29	1100	unknown		a*9.38	2.859	May 24	0900	36	1.02	7.97	2.429
May 1	1200	51	1.44	8.02	2.444	May 30	1230	33	.93	7.91	2.411
May 10	0400	81	2.29	8.30	2.530	July 2	2000	32	.91	7.79	2.374
May 18	1400	*102	2.89	8.48	2.585						

a Backwater from ice.
Minimum daily discharge, 0.45 ft³/s (0.013 m³/s) Mar. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.6	1.5	1.3	.84	1.0	.50	1.4	40	22	4.6	4.9	1.3
2	2.7	1.4	1.3	.88	1.1	.50	1.7	31	22	7.6	6.5	1.3
3	2.5	1.4	1.1	.96	1.2	.50	1.9	25	17	7.5	5.5	1.2
4	1.7	1.2	.90	1.0	1.1	.50	1.4	54	17	4.4	4.7	1.1
5	1.3	1.2	.90	1.1	1.0	.50	1.5	61	17	3.5	3.5	.90
6	1.3	1.2	.90	1.0	1.0	.50	1.7	64	16	3.8	3.0	.66
7	1.3	1.3	.90	.94	1.0	.60	1.4	59	14	4.4	3.1	.58
8	1.5	1.3	.90	.90	1.0	.70	1.2	55	13	3.7	3.0	.50
9	.46	1.3	.90	.98	1.0	.80	1.5	65	11	3.3	2.8	.50
10	2.1	1.4	1.0	1.1	1.0	1.0	1.1	76	10	3.2	2.6	.98
11	2.3	1.4	1.0	1.1	1.0	1.0	1.1	62	8.9	3.0	2.5	.98
12	1.5	1.5	1.0	1.1	1.0	.90	1.1	47	8.2	2.8	2.4	.98
13	1.0	1.4	1.1	1.0	.90	.80	1.1	36	7.5	2.7	2.5	.98
14	.50	1.3	1.1	.90	.90	.60	.98	30	7.3	2.4	2.5	.90
15	1.1	1.3	1.1	.90	.90	.50	1.9	24	7.0	2.4	3.8	.82
16	1.3	1.2	1.1	.80	.98	.50	2.5	19	6.8	2.1	3.3	.90
17	1.9	1.2	1.1	.80	.90	.74	2.7	19	11	2.1	2.7	.90
18	1.2	1.2	1.1	.90	.98	1.7	2.8	75	9.3	2.0	2.4	1.2
19	.74	1.3	1.1	.90	.98	2.1	2.3	68	7.0	2.0	2.4	1.3
20	1.1	1.4	1.1	.90	.82	2.0	1.6	50	6.3	2.1	2.2	1.2
21	1.3	1.6	1.1	1.0	1.0	1.6	1.5	41	5.5	5.7	2.0	1.2
22	1.3	2.0	1.1	1.0	1.1	1.5	1.9	34	6.0	7.3	1.7	1.1
23	1.4	1.5	1.1	1.1	1.3	1.4	1.9	29	5.3	4.4	2.0	.98
24	1.3	1.4	1.0	1.1	.90	1.3	1.6	32	5.0	3.3	1.7	.74
25	1.2	1.4	.90	1.1	.74	.45	1.3	25	5.0	3.0	1.6	.74
26	1.3	1.4	.80	1.0	.58	.98	1.3	20	4.7	2.6	1.6	.82
27	1.4	1.4	.80	1.0	.66	1.3	1.3	18	4.4	2.1	1.6	.82
28	1.5	1.4	.80	1.0	.58	1.6	2.5	21	4.0	2.3	1.6	.74
29	1.5	1.4	.80	1.0	---	2.0	7.8	17	4.0	3.2	1.5	.82
30	1.5	1.5	.80	1.0	---	2.0	14	28	3.8	4.6	1.6	.90
31	1.5	---	.80	1.0	---	1.[illegible]	---	27	---	3.8	1.4	---
TOTAL	45.30	41.4	30.90	30.30	26.62	32.97	67.98	1252	286.0	111.9	84.6	28.04
MEAN	1.46	1.38	1.00	.98	.95	1.06	2.27	40.4	9.53	3.61	2.73	.93
MAX	2.7	2.0	1.3	1.1	1.3	2.1	14	76	22	7.6	6.5	1.3
MIN	.46	1.2	.80	.80	.58	.45	.98	17	3.8	2.0	1.4	.50
AC-FT	90	82	61	60	53	65	135	2480	567	222	168	56

CAL YR 1977 TOTAL 464.10 MEAN 1.27 MAX 15 MIN .00 AC-FT 921
WTR YR 1978 TOTAL 2038.01 MEAN 5.58 MAX 76 MIN .45 AC-FT 4040

06406000 BATTLE CREEK AT HERMOSA, SD

LOCATION.--Lat 43°49'41", long 103°11'44", in NE¼SW¼SW¼ sec.32, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, on right bank 50 ft (15 m) downstream from Chicago and North Western Transportation Company bridge, 0.8 mi (1.3 km) south of Hermosa and 2.9 mi (4.7 km) downstream from Grace Coolidge Creek.

DRAINAGE AREA.--178 mi^2 (461 km^2).

PERIOD OF RECORD.--August to December 1903 (gage heights only), July 1949 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,290 ft (1,000 m), from topographic map. Nonrecording gage, August to December 1903, at site 50 ft (15 m) upstream, July 7, 1949, to Nov. 2, 1950, at site 0.5 mi (0.8 km) upstream, Nov. 3, 1950, to Dec. 6, 1961, at site 170 ft (52 m) downstream, all at different datum. Dec. 7, 1961, to June 10, 1972, water-stage recorder (destroyed by flood), and June 11, 1972, to Aug. 28, 1972, nonrecording gage at site 80 ft (24 m) downstream at present datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 9.53 ft^3/s (0.270 m^3/s), 6,900 acre-ft/yr (8.51 hm^3/yr); median of yearly mean discharges, 6.1 ft^3/s (0.17 m^3/s), 4,400 acre-ft/yr (5.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft^3/s (606 m^3/s) June 10, 1972, gage height, 17.72 ft (5.401 m), from floodmarks, from rating curve extended above 2,800 ft^3/s (79.3 m^3/s) on basis of contracted-opening and flow-over-railroad embankment measurement of peak flow; no flow at times in 1954-57, 1959.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)	Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)
May 6	1045	223	6.32	4.96	1.512	May 18	2045	*244	6.91	*5.05	1.539

Minimum daily discharge, 2.0 ft^3/s (0.057 m^3/s) Mar. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	3.9	4.5	3.3	3.3	2.2	4.2	56	78	13	11	6.1
2	4.3	3.9	4.5	3.4	3.3	2.4	4.2	54	71	17	13	5.6
3	3.9	3.7	4.5	3.4	3.5	2.4	4.2	37	62	20	11	5.0
4	3.9	3.5	4.5	3.3	3.6	2.4	3.9	77	58	13	10	4.8
5	3.7	3.5	4.2	3.5	3.5	2.2	4.0	95	52	13	9.3	5.0
6	3.8	3.5	4.0	3.5	3.4	2.2	3.8	94	50	13	8.9	3.9
7	4.1	3.5	4.2	3.4	3.4	2.0	3.7	88	45	14	8.5	5.1
8	4.4	4.2	4.0	3.4	3.4	2.5	3.9	76	41	13	8.1	4.4
9	4.3	4.1	3.5	3.4	3.4	7.0	4.1	89	38	13	8.7	4.3
10	5.0	4.1	3.2	3.4	3.4	12	4.1	121	33	13	8.0	5.6
11	5.1	4.2	3.5	3.5	3.4	25	4.2	125	31	13	7.9	5.5
12	5.3	4.2	3.5	3.6	3.5	19	4.0	99	27	12	7.3	5.5
13	5.4	4.2	4.0	3.5	3.5	14	3.7	80	26	11	7.4	4.9
14	5.0	4.3	4.5	3.5	3.5	8.1	3.5	68	24	11	7.8	4.8
15	5.0	4.1	4.5	3.5	3.5	6.6	4.1	57	22	9.5	10	4.6
16	5.2	4.1	4.5	3.4	3.5	5.8	4.2	48	21	10	8.9	4.4
17	5.2	4.1	4.5	3.3	3.5	5.7	4.2	43	24	11	8.3	4.5
18	5.2	4.1	4.5	3.3	3.3	7.4	4.4	112	24	10	8.4	5.6
19	5.4	4.1	4.0	3.3	3.3	6.9	4.2	177	20	10	8.8	5.1
20	4.8	4.0	4.0	3.4	3.3	5.7	3.9	124	18	10	7.9	4.7
21	4.9	4.0	4.0	3.5	2.8	5.3	4.0	98	16	16	6.4	4.8
22	5.3	3.9	4.0	3.5	2.8	5.1	4.0	82	15	16	6.9	4.8
23	5.2	4.0	4.0	3.5	3.0	5.0	3.7	101	14	13	7.3	4.4
24	5.2	4.0	3.8	3.5	3.0	4.8	3.7	111	15	11	5.5	4.1
25	5.2	4.2	3.5	3.4	2.5	4.7	3.7	96	15	11	6.7	4.1
26	5.0	4.5	3.4	3.3	2.2	4.7	3.6	81	15	9.7	6.4	3.9
27	5.0	4.5	3.4	3.3	2.4	4.7	3.5	70	14	7.6	6.3	3.5
28	4.8	4.5	3.4	3.4	2.2	4.6	4.1	76	14	7.6	7.0	3.5
29	4.8	4.5	3.4	3.4	---	4.6	6.3	65	13	7.8	6.3	3.3
30	4.9	4.5	3.4	3.4	---	4.4	5.7	88	13	8.0	6.5	3.3
31	4.4	---	3.3	3.3	---	4.3	---	93	---	8.0	7.6	---
TOTAL	147.7	121.9	122.2	105.8	89.4	193.7	122.8	2681	909	365.2	252.1	139.1
MEAN	4.76	4.06	3.94	3.41	3.19	6.25	4.09	86.5	30.3	11.8	8.13	4.64
MAX	5.4	4.5	4.5	3.6	3.6	25	6.3	177	78	20	13	6.1
MIN	3.7	3.5	3.2	3.3	2.2	2.0	3.5	37	13	7.6	5.5	3.3
AC-FT	293	242	242	210	177	384	244	5320	1800	724	500	276

CAL YR 1977 TOTAL 1619.4 MEAN 4.44 MAX 36 MIN 1.0 AC-FT 3210
WTR YR 1978 TOTAL 5249.9 MEAN 14.4 MAX 177 MIN 2.0 AC-FT 10410

06408500 SPRING CREEK NEAR HERMOSA, SD

LOCATION.--Lat 43°56'31", long 103°09'32", in SE¼SE¼SE¼ sec.21, T.1 S., R.8 E., Pennington County, Hydrologic Unit 10120109, at left upstream end of county highway bridge, 0.3 mi (0.5 km) upstream from Chicago and North Western Transportation Company bridge and 7.5 mi (12.1 km) north of Hermosa.

DRAINAGE AREA.--199 mi^2 (515 km^2).

PERIOD OF RECORD.--July 1949 to current year.

REVISED RECORDS.--WSP 1729: 1950.

GAGE.--Water-stage recorder. Datum of gage is 3,265.30 ft (995.263 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 30, 1973, nonrecording gage and crest-stage gage 210 ft (64.0 m) upstream, and Mar. 30 to Sept. 30, 1973, water-stage recorder at present site, both at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for Aug. 24 to Sept. 30, which are fair, and those for winter periods, which are poor. Considerable loss in sinkholes in reach 10 to 15 mi (16 to 24 km) above station. Flow slightly regulated by Lake Sheridan, capacity, 12,657 acre-ft (15.6 hm^3), 24 mi (39 km) above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 5.78 ft^3/s (0.164 m^3/s), 4,190 acre-ft/yr (5.17 hm^3/yr); median of yearly mean discharges, 1.6 ft^3/s (0.05 m^3/s), 1,200 acre-ft/yr (1.5 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,400 ft^3/s (379 m^3/s) June 10, 1972, gage height, 13.12 ft (3.999 m), site and datum then in use, from floodmarks, from rating curve extended above 350 ft^3/s (9.91 m^3/s) on basis of contracted-opening measurement of peak flow; no flow for many days most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 170 ft^3/s (4.81 m^3/s) May 20, gage height, 3.91 ft (1.192 m); maximum gage height, 4.18 ft (1.274 m) Mar. 10 (backwater from ice); minimum daily discharge, 0.15 ft^3/s (0.004 m^3/s) Dec. 9.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 24, Aug. 14-23; stage-discharge relation affected by ice Nov. 19-28, Dec. 6 to Mar. 20)

2.14	0	2.3	2.9	2.6	16	3.5	113
2.2	.70	2.4	6.4	3.0	51	4.0	194

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	.24	.44	.35	.20	.60	.70	1.2	94	4.1	3.3	1.8
2	.70	.33	.28	.30	.20	.60	.70	.83	86	7.1	3.2	1.7
3	.40	.38	.28	.40	.25	.50	.70	.70	70	13	3.1	1.7
4	.40	.28	.28	.50	.35	.50	.70	1.3	67	7.3	3.2	1.7
5	.28	.35	.28	.35	.35	.50	.66	1.5	62	5.2	2.8	1.6
6	.33	.39	.26	.30	.45	.60	.54	1.9	63	3.9	2.7	1.6
7	.40	.33	.21	.25	.40	.60	.54	3.3	61	4.1	2.9	1.6
8	.47	.50	.18	.20	.40	.70	.54	3.7	56	3.8	2.5	1.6
9	.48	.41	.15	.20	.40	.70	.54	1.5	51	3.5	2.5	1.6
10	.54	.40	.22	.20	.40	.80	.54	1.1	45	3.5	2.4	1.6
11	.54	.40	.32	.25	.40	.80	.58	10	39	3.0	2.7	1.8
12	.48	.40	.40	.35	.40	.80	.51	52	35	2.6	2.4	1.7
13	.49	.40	.45	.35	.40	.80	.40	74	32	2.3	2.2	1.6
14	.40	.40	.48	.35	.40	.80	.40	74	29	2.3	2.4	1.6
15	.28	.40	.50	.30	.35	.80	.57	67	27	2.2	3.6	1.6
16	.28	.40	.50	.20	.35	.80	.70	59	23	2.6	2.0	1.6
17	.28	.30	.45	.25	.40	.90	.69	54	26	2.3	1.6	1.6
18	.28	.28	.40	.20	.50	1.0	.64	63	29	2.3	1.7	1.8
19	.38	.50	.40	.18	.60	1.5	.66	127	29	2.3	1.9	1.7
20	.47	.45	.40	.20	.50	2.0	.54	165	26	2.5	1.9	1.6
21	.62	.40	.40	.35	.70	1.6	.54	154	23	4.3	1.8	1.6
22	.60	.45	.45	.40	.80	1.3	.54	127	19	5.2	1.6	1.6
23	.78	.45	.45	.50	.90	.88	.54	136	16	3.2	1.8	1.6
24	.71	.50	.40	.50	.90	.70	.54	135	13	3.2	1.9	1.5
25	.70	.50	.40	.40	.80	1.1	.54	108	11	2.9	2.0	1.5
26	.54	.65	.40	.30	.80	.88	.54	93	9.1	2.6	2.0	1.4
27	.54	.60	.50	.30	.70	.88	.60	80	8.2	2.6	2.2	1.4
28	.40	.50	.45	.35	.70	.70	.82	79	6.4	2.9	2.1	1.4
29	.40	.38	.35	.35	---	.70	2.5	77	5.2	2.9	2.0	1.3
30	.40	.46	.25	.30	---	.70	1.7	86	4.7	2.9	1.9	1.3
31	.36	---	.30	.25	---	.88	---	97	---	2.9	1.9	---
TOTAL	15.23	12.43	11.23	9.68	14.00	26.62	20.71	1934.03	1065.6	115.5	72.2	47.7
MEAN	.49	.41	.36	.31	.50	.86	.69	62.4	35.5	3.73	2.33	1.59
MAX	1.3	.65	.50	.50	.90	2.0	2.5	165	94	13	3.6	1.8
MIN	.28	.24	.15	.18	.20	.50	.40	.70	4.7	2.2	1.6	1.3
AC-FT	30	25	22	19	28	53	41	3840	2110	229	143	95

CAL YR 1977 TOTAL 452.58 MEAN 1.24 MAX 37 MIN .00 AC-FT 898
WTR YR 1978 TOTAL 3344.93 MEAN 9.16 MAX 165 MIN .15 AC-FT 6630

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD
(Hydrologic benchmark and radiochemical station)

LOCATION.--Lat 44°00'49", long 103°49'48", in SW¼ sec.25, T.1 N., R.2 E., Pennington County, Hydrologic Unit 10120110, on right bank 50 ft (15 m) downstream from highway bridge, 250 ft (76 m) downstream from South Fork Castle Creek, 600 ft (183 m) upstream from high-water line of Deerfield Reservoir, 2.5 mi (4.0 km) southwest of Deerfield Dam, and 14 mi (23 km) northwest of Hill City.

DRAINAGE AREA.--83 mi^2 (215 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1948 to current year. Prior to October 1953, published as "above Deerfield Reservoir, near Deerfield".

REVISED RECORDS.--WSP 1917: 1952(M).

GAGE.--Water-stage recorder and grouted-rock control. Altitude of gage is 5,910 ft (1,800 m), from reservoir elevation. Prior to Aug. 31, 1948, nonrecording gage at site 50 ft (15 m) upstream at datum 2.05 ft (0.625 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Recording rain gage located at Deerfield Dam 2.5 mi (4.0 km) northeast of station.

AVERAGE DISCHARGE.--30 years, 10.2 ft^3/s (0.289 m^3/s), 7,390 acre-ft/yr (9.11 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,120 ft^3/s (31.7 m^3/s) May 22, 1952, gage height, 5.81 ft (1.771 m), from rating curve extended above slope-area measurement at gage height, 5.67 ft (1.728 m); minimum, 1.2 ft^3/s (0.034 m^3/s) Apr. 25, 1969; minimum gage height, 1.35 ft (0.411 m) Nov. 12, 1949, Feb. 19, 1954, Mar. 7, 1957, Mar. 29, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 64 ft^3/s (1.81 m^3/s) May 18, gage height, 2.88 ft (0.878 m); maximum gage height, 3.30 ft (1.006 m) Dec. 20 (backwater from ice), no peak above base of 100 ft^3/s (2.83 m^3/s); minimum daily discharge, 6.2 ft^3/s (0.18 m^3/s) Nov. 21.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	10	8.0	8.0	9.0	11	16	19	30	21	15	13
2	10	10	7.5	8.5	9.0	11	17	17	28	19	15	12
3	10	10	7.5	9.0	9.0	10	15	21	28	17	15	12
4	10	10	7.0	9.5	9.3	10	15	22	28	16	14	12
5	9.8	10	6.5	10	9.5	10	15	21	31	16	14	12
6	9.8	10	6.5	10	9.5	10	14	20	28	18	13	12
7	12	10	6.5	10	9.3	10	14	19	26	17	13	12
8	11	9.5	6.5	10	9.3	10	14	19	24	18	13	12
9	10	9.5	6.5	9.8	9.3	11	13	25	24	17	13	12
10	11	9.0	6.5	9.8	9.3	10	13	40	23	17	12	12
11	12	8.5	7.0	9.5	9.8	9.8	13	38	23	16	12	13
12	12	8.6	8.0	10	9.3	9.8	13	36	22	16	12	13
13	12	8.7	9.0	9.5	9.8	9.5	12	32	21	15	12	12
14	11	8.8	9.0	9.0	10	9.5	12	30	21	15	13	12
15	11	9.1	9.0	8.5	10	9.1	12	27	21	15	14	12
16	11	9.0	9.0	8.5	10	10	12	26	22	15	13	12
17	11	9.0	9.0	9.0	10	11	12	34	27	16	13	13
18	11	8.5	9.0	9.0	10	11	6.9	52	21	15	12	13
19	11	8.0	9.0	8.5	10	12	8.6	47	21	15	12	13
20	11	7.0	9.0	8.5	10	12	10	40	20	15	12	13
21	11	6.2	9.0	8.5	10	14	15	37	20	24	12	13
22	11	6.5	9.0	8.5	8.4	13	15	36	19	19	12	13
23	11	6.5	9.0	8.5	8.4	11	13	35	19	16	12	13
24	11	7.0	9.0	8.5	9.3	11	13	35	19	15	12	13
25	11	7.0	9.0	8.6	10	11	13	32	19	15	12	13
26	10	7.5	9.0	8.8	11	14	13	31	18	15	12	13
27	10	8.0	9.0	9.3	13	16	14	32	18	14	14	13
28	10	9.0	9.0	9.5	11	16	19	33	17	14	13	13
29	10	8.0	9.0	9.5	---	17	21	31	18	16	13	13
30	11	8.0	8.5	9.2	---	17	19	35	18	15	13	13
31	10	---	8.5	9.0	---	17	---	32	---	16	13	---
TOTAL	334.6	256.9	254.0	282.5	272.5	363.7	412.5	954	674	508	400	377
MEAN	10.8	8.56	8.19	9.11	9.73	11.7	13.8	30.8	22.5	16.4	12.9	12.6
MAX	12	10	9.0	10	13	17	21	52	31	24	15	13
MIN	9.8	6.2	6.5	8.0	8.4	9.1	6.9	17	17	14	12	12
AC-FT	664	510	504	560	541	721	818	1890	1340	1010	793	748

CAL YR 1977 TOTAL 3954.9 MEAN 10.8 MAX 23 MIN 6.2 AC-FT 7840
WTR YR 1978 TOTAL 5089.7 MEAN 13.9 MAX 52 MIN 6.2 AC-FT 10100

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES.--May 1964 to current year.

INSTRUMENTATION.--Recorder with thermograph attachment.

REMARKS.--Periodic samples obtained for analysis of suspended-sediment concentration most years. Monthly samples obtained for water-quality analysis.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum, 22.0°C July 17, 1969; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum, 19.5°C July 3; minimum 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)
OCT											
18...	1330	11	580	8.3	5.5	10.9	K30	K10	K16	270	81
NOV											
07...	1230	10	525	8.7	.0	10.9	K30	K35	K8	260	2
DEC											
06...	1315	6.4	500	8.3	.5	10.8	K10	K10	25	300	10
FEB											
08...	1345	11	530	8.2	.0	11.2	50	ND	10	230	21
MAR											
09...	1415	10	430	7.8	.0	10.3	K20	K4	K40	270	14
APR											
11...	1530	14	550	7.6	4.0	9.5	K2	K3	K25	260	2
MAY											
16...	1200	30	470	8.1	12.0	8.7	K6	K10	60	260	53
JUN											
21...	1030	21	545	8.4	10.0	9.9	50	--	40	270	24
JUL											
11...	1100	16	510	8.3	14.5	10.0	50	20	70	280	7
AUG											
03...	1030	15	388	8.2	7.0	--	50	20	80	280	71

DATE	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)
OCT											
18...	57	31	1.0	1	.0	1.1	230	0	190	15	1.4
NOV											
07...	55	29	1.1	1	.0	1.3	310	0	250	6.3	2.5
DEC											
0[illegible]...	63	34	1.3	1	.0	1.5	350	0	290	7.6	1.0
FE											
08...	59	21	.9	1	.0	1.2	260	0	210	7.4	1.0
MAR											
09...	58	30	1.0	1	.0	1.1	310	0	250	7.7	1.1
APR											
11...	53	30	.9	1	.0	1.1	310	0	250	8.6	1.0
MAY											
16...	54	30	1.1	1	.0	1.5	250	0	210	14	1.5
JUN											
21...	57	32	1.6	1	.0	1.1	--	--	250	8.2	1.0
JUL											
11...	58	32	1.3	1	.0	1.2	--	--	270	8.8	1.2
AUG											
03...	58	33	1.7	1	.0	1.2	--	--	210	4.7	1.1

K Non-ideal colony count.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 18...	.1	9.0	250	229	.34	7.43	2.2	.01	45	1.3	74
NOV 07...	.1	8.8	244	257	.33	6.59	.09	.01	36	.97	60
DEC 06...	.2	10	263	291	.36	4.54	.28	.01	--	--	--
FEB 08...	.1	9.6	256	228	.35	7.60	.22	.03	--	--	--
MAR 09...	.2	8.0	247	260	.34	6.67	.18	.09	66	1.7	67
APR 11...	.2	8.7	249	256	.34	9.41	.13	.02	78	2.9	64
MAY 16...	.1	9.3	247	235	.34	20.0	.14	.05	92	7.4	--
JUN 21...	.1	8.7	237	260	.32	13.4	.06	.02	47	2.7	--
JUL 11...	.1	8.8	229	274	.31	10.2	.06	.02	35	1.6	--
AUG 03...	.1	9.4	241	235	.33	9.76	.12	.01	41	1.6	--

DATE	TIME	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L) (00515)	SOLIDS, RESIDUE AT 105 DEG. C, SUSPENDED (MG/L) (00530)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)	RADIUM 226, DISSOLVED, RADON METHOD (PCI/L) (09511)
OCT 18...	1330	260	2	5.5	<.4	1.3	<.4	1.2	<.4	.11

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	BARIUM, TOTAL RECOVERABLE (UG/L AS BA) (01007)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)
OCT 18...	1330	1	500	<10	0	<10	40
MAY 16...	1200	1	200	0	20	3	630

< Less than.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SILVER, TOTAL RECOV-ERABLE (UG/L AS AG) (01077)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	CYANIDE TOTAL (MG/L AS CN) (00720)
OCT							
18...	<100	8	.0	0	<10	20	.00
MAY							
16...	2	30	.0	0	0	20	.00

DATE	TIME	PCB, TOTAL (UG/L) (39516)	PCB, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39519)	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39333)	CHLOR-DANE, TOTAL (UG/L) (39350)	CHLOR-DANE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
OCT												
18...	1330	.0	0	.00	.0	.0	0	.00	.0	.00	.2	.00

DATE	DDT, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39373)	DI-AZINON, TOTAL (UG/L) (39570)	DI-ELDRIN TOTAL (UG/L) (39380)	DI-ELDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	HEPTA-CHLOR, TOTAL (UG/L) (39410)	HEPTA-CHLOR, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39413)	HEPTA-CHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTA-CHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)
OCT												
18...	.0	.00	.00	.0	.00	.0	.00	.00	.0	.00	.0	.00

DATE	LINDANE TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39343)	MALA-THION, TOTAL (UG/L) (39530)	METHYL PARA-THION, TOTAL (UG/L) (39600)	METHYL TRI-THION, TOTAL (UG/L) (39790)	PARA-THION, TOTAL (UG/L) (39540)	TOX-APHENE, TOTAL (UG/L) (39400)	TOXA-PHENE, TOTAL IN BOT-TOM MA-TERIAL (UG/KG) (39403)	TOTAL TRI-THION (UG/L) (39786)	2,4-D, TOTAL (UG/L) (39730)	2,4,5-T TOTAL (UG/L) (39740)	SILVEX, TOTAL (UG/L) (39760)
OCT											
18...	.0	.00	.00	.00	.00	0	0	.00	.00	.00	.00

< Less than.

06409000 CASTLE CREEK ABOVE DEERFIELD RESERVOIR, NEAR HILL CITY, SD--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11.5	10.0	4.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
2	11.5	8.5	5.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0
3	11.5	8.0	5.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0
4	11.0	10.0	7.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0
5	9.5	8.5	8.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0
6	10.5	8.0	7.0	6.0	.0	.0	.0	.0	.0	.0	.0	.0
7	10.5	8.5	7.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0
8	8.5	7.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
9	8.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	8.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	4.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
12	6.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
13	9.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
14	8.0	6.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
15	6.5	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
16	8.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
17	8.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
18	6.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
19	6.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
20	6.5	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
21	6.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
22	8.5	6.0	.0	.0	.0	.0	.0	.0	.0	.0	.5	.0
23	7.0	5.0	.0	.0	.0	.0	.0	.0	.0	.0	1.0	.0
24	7.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	2.0	1.0
25	8.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	4.0	2.0
26	8.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0	4.0	2.0
27	7.0	4.5	.0	.0	.0	.0	.0	.0	.0	.0	4.5	2.0
28	7.0	5.5	.0	.0	.0	.0	.0	.0	.0	.0	5.0	3.0
29	8.0	6.5	.0	.0	.0	.0	.0	.0	---	---	6.0	3.0
30	8.0	6.5	.0	.0	.0	.0	.0	.0	---	---	7.0	3.0
31	6.5	4.0	---	---	.0	.0	.0	.0	---	---	6.0	3.0
MONTH	11.5	3.5	8.0	.0	.0	.0	.0	.0	.0	.0	7.0	.0

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	7.0	3.5	6.5	5.0	12.0	4.5	14.0	11.0	14.5	11.0	13.5	9.0
2	8.5	5.0	10.5	4.5	13.0	4.5	18.0	10.0	14.0	9.5	13.5	9.0
3	8.5	5.0	9.0	5.0	10.5	5.5	19.5	11.0	11.0	6.5	14.5	9.5
4	8.0	3.0	5.5	5.0	14.0	6.5	18.5	11.5	14.0	8.0	14.5	10.0
5	8.5	5.0	5.0	5.0	10.0	7.0	18.0	10.5	15.0	8.5	14.5	9.5
6	9.0	3.0	5.0	5.0	15.0	6.5	16.0	11.5	14.5	10.0	15.5	10.5
7	9.5	5.0	4.5	4.5	13.0	8.5	15.5	10.0	16.0	10.0	15.0	10.0
8	11.0	5.5	5.0	4.5	12.0	7.0	18.0	11.5	14.5	10.0	14.5	11.0
9	9.0	3.5	8.5	4.5	14.5	8.0	16.0	12.0	14.5	10.5	14.0	9.5
10	5.0	2.0	9.5	4.5	13.0	8.5	18.5	10.5	15.5	10.0	14.0	10.0
11	5.5	2.0	10.5	5.0	12.0	8.5	19.0	12.0	16.0	10.0	11.5	9.0
12	5.5	6.5	9.5	5.5	14.0	6.0	18.0	11.0	16.5	10.5	9.0	7.0
13	4.5	1.0	13.5	5.5	17.0	8.5	18.0	10.0	16.5	12.0	9.0	6.5
14	5.0	3.0	14.5	8.0	18.0	10.0	16.5	12.0	15.5	11.0	9.5	5.5
15	5.0	3.5	17.0	8.5	18.0	10.0	16.5	10.5	13.5	10.0	10.0	6.0
16	10.5	4.5	14.0	10.0	13.5	10.0	19.0	12.0	14.0	9.0	10.0	8.0
17	8.5	4.0	11.0	9.0	11.0	9.0	18.5	12.0	14.0	9.5	8.5	8.0
18	4.0	.5	9.0	8.0	14.5	6.5	16.0	12.0	12.0	9.0	9.0	6.5
19	1.5	.5	8.0	6.0	14.5	9.5	14.5	10.5	11.5	6.0	---	---
20	4.5	.5	13.5	4.0	14.5	8.0	13.0	11.0	13.5	7.0	---	---
21	6.5	.5	14.0	6.5	14.0	8.0	12.0	10.5	14.5	8.5	---	---
22	5.0	3.5	12.0	7.0	16.5	10.0	12.0	9.5	13.0	10.5	---	---
23	5.5	1.5	14.5	6.5	17.0	9.0	15.5	9.0	15.0	9.5	---	---
24	9.5	2.0	15.5	9.0	16.5	11.0	16.5	10.5	15.5	10.5	---	---
25	11.0	4.5	15.0	8.0	16.0	10.5	16.5	11.0	14.5	11.0	---	---
26	11.5	5.5	11.5	8.0	14.0	9.0	16.5	10.0	14.0	10.5	---	---
27	13.0	6.5	9.5	7.0	17.0	8.0	17.0	10.0	11.5	9.0	---	---
28	10.5	8.0	9.5	6.5	16.0	10.0	15.5	12.0	12.0	8.0	---	---
29	8.0	6.5	10.5	5.5	16.0	11.5	16.0	12.0	10.5	8.5	9.0	7.0
30	6.5	6.5	10.0	7.0	15.5	12.0	16.5	11.0	12.0	7.0	9.0	6.0
31	---	---	9.0	4.5	---	---	14.5	11.0	13.5	10.0	---	---
MONTH	13.0	.5	17.0	4.0	18.0	4.5	19.5	9.0	16.5	6.0	15.5	5.5

06409500 DEERFIELD RESERVOIR NEAR HILL CITY, SD

LOCATION.--Lat 44°01'41", long 103°47'09", in NE¼SW¼ sec.20, T.1 N., R.3 E., at dam on Castle Creek, Hydrologic Unit 10120110, 0.4 mi (0.6 km) upstream from Dutchman Creek and 12.5 mi (20.1 km) northwest of Hill City.

DRAINAGE AREA.--95 mi^2 (246 km^2), approximately.

PERIOD OF RECORD.--May 1947 to current year (monthend contents only). Some elevations obtained during period of initial filling, December 1945 to May 1947, are available in Bureau of Reclamation files. Prior to October 1953, published as "near Deerfield."

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (levels by Bureau of Reclamation). Prior to July 20, 1964, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam. Storage began Dec. 3, 1945; dam completed in 1947. Usable capacity, 15,153 acre-ft (18.7 hm^3) between elevations 5,839 ft (1,779.7 m), lowest outlet, and 5,908 ft (1,800.8 m), crest of spillway. Dead storage below elevation 5,839 ft (1,779.7 m), 565 acre-ft (0.697 hm^3). Figures given herein represent usable contents. Water is used to supplement Rapid City water supply and for irrigation in Rapid Creek basin downstream from Rapid City.

COOPERATION.--Records of elevation and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 15,340 acre-ft (18.9 hm^3) May 22, 1952, elevation, 5,908.50 ft (1,800.911 m), from capacity table extended above elevation 5,908.00 ft (1,800.758 m), crest of spillway; minimum observed, 5 acre-ft (6,160 m^3) Oct. 2, 1959, elevation, 5,839.10 ft (1,779.758 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 15,219 acre-ft (18.8 hm^3) May 18, elevation, 5,908.16 ft (1,800.807 m); minimum, 13,495 acre-ft (16.6 hm^3) Oct. 1, elevation, 5,903.87 ft (1,799.500 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	5903.80	13468	
Oct. 31	5904.83	13871	+403
Nov. 30	5905.83	14268	+397
Dec. 31	5906.91	14704	+436
CAL YR 1977			+861
Jan. 31	5908.01	15157	+453
Feb. 28	5907.99	15149	-8
Mar. 31	5908.03	15165	+16
Apr. 30	5908.00	15153	-12
May 31	5907.93	15124	-29
June 30	5907.61	14991	-133
July 31	5907.75	15049	+58
Aug. 31	5906.42	14505	-544
Sept. 30	5904.42	13710	-795
WTR YR 1978			+242

06410000 CASTLE CREEK BELOW DEERFIELD DAM, SD

LOCATION.--Lat 44°01'45", long 103°46'53", in NW¼SE¼ sec.20, T.1 N., R.3 E., Pennington County, Hydrologic Unit 10120110, on left bank 200 ft (61 m) upstream from Dutchman Creek, 1,100 ft (335 m) downstream from Deerfield Dam, and 12.5 mi (20.1 km) northwest of Hill City.

DRAINAGE AREA.--96 mi² (249 km²), approximately.

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Datum of gage is 5,784.52 ft (1,763.122 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Oct. 15, 1947, at site 400 ft (122 m) downstream at datum 0.23 ft (0.070 m) higher. Oct. 15, 1947, to Sept. 1, 1948, at site 550 ft (168 m) downstream at datum 1.77 ft (0.540 m) lower, and Sept. 2, 1948, to Nov. 2, 1971, at site 300 ft (91 m) upstream at datum 4.0 ft (1.22 m) higher.

REMARKS.--Records good. Flow completely regulated by Deerfield Reservoir 1,100 ft (335 m) upstream. (See station 06409500.) Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--32 years, 10.5 ft³/s (0.297 m³/s), 7,610 acre-ft/yr (9.38 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 200 ft³/s (5.66 m³/s) May 22, 1952; maximum gage height, 3.87 ft (1.180 m) May 23, 1952 (backwater from spillway overflow), site and datum then in use; no flow at times in 1948, 1950-60.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 83 ft³/s (2.35 m³/s) May 18; minimum daily, 2.0 ft³/s (0.057 m³/s) Jan. 2-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.7	2.5	2.3	2.1	10	10	21	30	41	21	19	20
2	2.7	2.4	2.2	2.0	9.3	9.4	21	27	38	21	19	20
3	2.7	2.4	2.2	2.0	8.7	8.4	20	27	38	25	19	20
4	2.7	2.4	2.2	2.0	8.3	8.7	19	37	37	29	19	20
5	2.7	2.4	2.2	2.0	8.0	9.4	18	36	48	29	19	20
6	2.9	2.3	2.2	2.0	8.1	9.6	18	35	43	29	19	20
7	2.9	2.3	2.2	2.0	7.9	9.4	17	37	39	29	19	20
8	2.9	2.4	2.2	2.0	8.3	9.1	18	33	37	28	18	20
9	2.8	2.2	2.2	2.0	8.6	9.1	17	33	37	28	19	20
10	2.9	2.2	2.2	2.0	8.4	9.1	17	41	36	28	19	20
11	3.0	2.2	2.2	2.4	8.7	9.2	17	53	35	28	19	21
12	3.0	2.1	2.2	2.5	9.4	9.2	16	54	34	21	19	21
13	2.9	2.1	2.2	2.8	9.8	9.3	15	51	34	15	19	22
14	2.8	2.1	2.2	2.7	9.6	9.3	15	48	34	15	19	22
15	2.7	2.1	2.1	2.8	9.0	9.0	17	44	34	15	18	22
16	2.7	2.1	2.1	2.8	8.7	8.9	16	41	35	15	18	22
17	2.6	2.2	2.1	3.0	7.9	9.0	16	60	35	14	18	22
18	2.6	2.2	2.1	3.0	7.7	9.9	20	83	36	14	19	23
19	2.6	2.2	2.2	3.1	8.9	12	15	74	34	14	19	23
20	2.6	2.2	2.3	3.2	10	13	14	68	33	14	19	23
21	2.6	2.2	2.2	3.2	9.4	13	17	61	32	14	19	23
22	2.6	2.1	2.2	3.3	7.9	15	20	57	32	15	19	26
23	2.6	2.2	2.2	3.5	7.9	16	18	53	27	14	19	29
24	2.6	2.2	2.2	3.8	8.0	14	17	50	23	13	19	30
25	2.6	2.2	2.2	4.4	8.4	15	17	46	23	13	19	30
26	2.6	2.2	2.1	4.1	8.9	15	21	48	22	13	19	30
27	2.6	2.2	2.1	4.6	9.1	18	24	46	21	13	20	30
28	2.6	2.2	2.1	5.1	11	20	26	44	21	12	20	29
29	2.5	2.2	2.1	6.5	---	21	34	44	21	12	19	28
30	2.5	2.3	2.1	10	---	21	30	47	21	12	20	28
31	2.5	---	2.1	11	---	21	---	42	---	15	19	---
TOTAL	83.7	67.0	67.4	107.9	245.9	380.0	571	1450	981	578	588	704
MEAN	2.70	2.23	2.17	3.48	8.78	12.3	19.0	46.8	32.7	18.6	19.0	23.5
MAX	3.0	2.5	2.3	11	11	21	34	83	48	29	20	30
MIN	2.5	2.1	2.1	2.0	7.7	8.4	14	27	21	12	18	20
AC-FT	166	133	134	214	488	754	1130	2880	1950	1150	1170	1400

CAL YR 1977 TOTAL 3603.2 MEAN 9.87 MAX 29 MIN 1.6 AC-FT 7150
WTR YR 1978 TOTAL 5823.9 MEAN 16.0 MAX 83 MIN 2.0 AC-FT 11550

06410500 RAPID CREEK ABOVE PACTOLA RESERVOIR, AT SILVER CITY, SD

LOCATION.--Lat 44°05'05", long 103°34'48", in SW¼SE¼ sec.36, T.2 N., R.4 E., Pennington County, Hydrologic Unit 10120110, on right bank 0.8 mi (1.3 km) west of Silver City and 3.0 mi (4.8 km) downstream from Slate Creek.

DRAINAGE AREA.--292 mi² (756 km²).

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,620.00 ft (1,408.176 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Deerfield Reservoir on Castle Creek since December 1945 (see station 06409500). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 41.2 ft³/s (1.167 m³/s), 29,850 acre-ft/yr (36.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,060 ft³/s (58.3 m³/s) May 15, 1965, gage height, 10.44 ft (3.182 m); from rating curve extended above 1,000 ft³/s (28.3 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 4.0 ft³/s (0.11 m³/s) Jan. 20, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 430 ft³/s (12.2 m³/s) May 11; gage height, 6.58 ft (2.006 m); minimum daily, 13 ft³/s (0.37 m³/s) Nov. 20.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used May 8-10; stage-discharge relation affected by ice Nov. 9 to Mar. 31)

4.3	14	5.0	88
4.5	28	5.5	182
4.7	48	6.5	433

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	19	22	16	17	18	61	150	166	70	56	43
2	31	19	21	16	21	18	59	138	152	73	56	41
3	26	21	20	17	21	18	56	134	145	66	58	40
4	24	20	20	18	22	19	53	196	140	69	56	40
5	24	20	19	19	22	20	52	210	130	67	53	39
6	23	19	19	17	22	21	50	223	125	69	51	38
7	25	20	19	16	21	22	49	223	118	73	51	38
8	26	19	19	17	21	24	48	207	113	79	50	37
9	25	17	18	18	20	24	49	226	108	72	49	37
10	26	18	21	19	20	24	48	302	105	68	50	38
11	24	20	25	19	19	24	47	388	100	63	49	40
12	24	19	26	19	19	24	48	396	97	60	47	41
13	26	18	28	18	19	24	45	356	95	49	46	42
14	25	19	28	17	19	24	42	305	93	45	46	41
15	24	19	28	16	19	24	45	272	93	4	50	40
16	23	18	26	16	19	23	44	256	96	42	48	39
17	22	17	23	16	19	32	42	260	122	42	45	40
18	22	16	21	17	19	60	47	341	104	42	44	43
19	22	15	23	18	19	75	45	351	93	44	44	42
20	21	13	25	19	19	52	46	348	88	45	44	41
21	21	14	25	22	19	50	48	336	87	74	43	41
22	23	15	24	24	19	48	54	322	84	89	42	40
23	22	16	23	24	19	46	52	308	80	62	42	46
24	22	17	22	22	19	45	49	273	70	53	42	47
25	21	17	21	20	18	45	48	241	70	49	41	47
26	21	18	20	19	18	47	48	226	67	44	41	46
27	20	18	19	19	18	53	54	214	65	43	48	47
28	21	19	18	18	18	58	68	206	66	42	58	47
29	20	20	17	18	---	59	150	186	69	47	49	47
30	20	21	16	17	---	62	134	220	69	53	47	47
31	20	---	16	17	---	64	---	190	---	49	45	---
TOTAL	726	541	672	568	545	1147	1681	8004	3010	1787	1491	1255
MEAN	23.4	18.0	21.7	18.3	19.5	37.0	56.0	258	100	57.6	48.1	41.8
MAX	32	21	28	24	22	75	150	396	166	89	58	47
MIN	20	13	16	16	17	18	42	134	65	42	41	37
AC-FT	1440	1070	1330	1130	1080	2280	3330	15880	5970	3540	2960	2490

CAL YR 1977 TOTAL 14522.0 MEAN 39.8 MAX 179 MIN 9.0 AC-FT 28800
WTR YR 1978 TOTAL 21427.0 MEAN 58.7 MAX 396 MIN 13 AC-FT 42500

06411000 PACTOLA RESERVOIR NEAR SILVER CITY, SD

LOCATION.--Lat 44°04'20", long 103°29'17", in NE¼SW¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, in outlet works of dam on Rapid Creek, 3.8 mi (6.1 km) east of Silver City.

DRAINAGE AREA.--319 mi^2 (826 km^2).

PERIOD OF RECORD.--August 1956 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to Feb. 18, 1970, nonrecording gage at same site and datum.

REMARKS.--Reservoir formed by an earthfill dam completed August 1956. Storage began August 22, 1956. Conservation capacity, 54,960 acre-ft (67.8 hm^3) between elevations 4,456.1 ft (1,358.22 m) and 4,580.2 ft (1,396.04 m). Combined dead and inactive storage below elevation 4,456.1 ft (1,358.22 m) is 1,003 acre-ft (1.24 hm^3). Flood storage capacity, 43,050 acre-ft (53.1 hm^3) between elevations 4,580.2 ft (1,396.04 m) and 4,621.5 ft (1,408.63 m), crest of spillway. Surcharge capacity, 15,780 acre-ft (19.5 hm^3) between elevations 4,621.5 ft (1,408.63 m) and 4,633.7 ft (1,412.35 m), maximum pool elevation. Figures given herein represent contents above elevation 4,456.1 ft (1,358.22 m). Reservoir provides flood control and water for municipal and irrigation uses.

COOPERATION.--Records of elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 60,970 acre-ft (75.2 hm^3) May 19, 1964, elevation, 4,585.87 ft (1,397.773 m); minimum observed since initial filling, 42,122 acre-ft (51.9 hm^3) Sept. 30, 1974, elevation, 4,563.72 ft (1,391.022 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 59,579 acre-ft (73.5 hm^3) May 21, elevation, 4,585.44 ft (1,397.642 m); minimum, 47,229 acre-ft (58.2 hm^3) Oct. 1, elevation, 4,570.67 ft (1,393.140 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	4570.67	47229	
Oct. 31	4571.32	47726	+497
Nov. 30	4571.55	47903	+177
Dec. 31	4571.71	48027	+124
CAL YR 1977			-4564
Jan. 31	4571.95	48211	+184
Feb. 28	4572.73	48820	+609
Mar. 31	4574.83	50487	+1667
Apr. 30	4578.27	53319	+2832
May 31	4583.24	57615	+4296
June 30	4579.78	54601	-3014
July 31	4579.56	54413	-188
Aug. 31	4579.31	54199	-214
Sept. 30	4579.26	54157	-42
WTR YR 1978			+6928

06411500 RAPID CREEK BELOW PACTOLA DAM, SD

LOCATION.--Lat 44°04'36", long 103°28'54", in SW¼NE¼ sec.2, T.1 N., R.5 E., Pennington County, Hydrologic Unit 10120110, on right bank 2,000 ft (610 m) downstream from Pactola Dam, 3.9 mi (6.3 km) upstream from Deer Creek and 13 mi (21 km) west of Rapid City.

DRAINAGE AREA.--320 mi² (829 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to September 1932 (combined records of Creek and Dakota Power and Light Co. flume), July 1946 to current year. Prior to October 1953, published as "near Pactola." Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 1309: 1931(M).

GAGE.--Water-stage recorder; concrete control since Oct. 16, 1962. Datum of gage is 4,406.00 ft (1,342.949 m) National Geodetic Vertical Datum of 1929, Bureau of Reclamation bench mark. Apr. 19, 1929, to June 30, 1932, nonrecording gage at site 3,500 ft (1,070 m) upstream at different datum. July 24, 1946, to Aug. 24, 1947, nonrecording gage and Aug. 25, 1947, to Nov. 18, 1953, water-stage recorder, at site 2 mi (3 km) upstream at different datum.

REMARKS.--Records good. Flow regulated by dam on Castle Creek since December 3, 1945 (see station 06409500), and completely regulated by Pactola Reservoir 2,000 ft (610 m) upstream since Aug. 22, 1956 (see station 06411000).

AVERAGE DISCHARGE.--36 years, 44.6 ft³/s (1.263 m³/s), 32,310 acre-ft/yr (39.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft³/s (61.5 m³/s) May 22, 1952, gage height, 6.74 ft (2.054 m), site and datum then in use; no flow Oct. 11-17, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 386 ft³/s (10.9 m³/s) June 1-4; minimum daily, 9.4 ft³/s (0.27 m³/s) Oct. 20.

Rating table (gage height, in feet, and discharge, in cubic feet per second

7.0	9.4	7.7	62	8.3	213
7.2	17	8.0	120	8.7	410
7.4	29				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	11	15	15	14	15	14	15	386	59	61	36
2	17	11	15	15	14	15	14	19	386	59	59	36
3	17	11	15	15	14	15	15	24	386	68	58	36
4	17	12	14	15	14	16	15	25	386	81	50	36
5	17	12	14	15	13	16	15	123	286	70	45	36
6	16	12	14	15	14	16	15	184	226	59	47	36
7	16	12	14	15	14	16	15	114	230	59	47	36
8	16	12	14	15	14	16	15	34	230	61	52	36
9	16	15	14	15	13	16	15	34	230	61	54	37
10	16	20	14	15	13	13	15	34	234	61	54	37
11	16	18	14	15	14	12	15	97	234	59	54	37
12	16	18	14	15	14	14	15	177	151	61	54	37
13	14	17	13	15	13	14	15	226	85	64	54	37
14	10	17	13	15	13	14	15	234	85	64	54	37
15	10	16	13	15	13	14	15	238	85	62	54	37
16	9.7	16	14	15	14	14	15	251	83	62	53	37
17	9.7	16	14	15	14	15	15	260	83	62	53	37
18	9.7	16	14	15	13	15	15	264	83	68	50	37
19	9.7	16	14	15	13	15	15	300	94	74	49	38
20	9.4	16	14	15	13	15	15	325	118	74	49	37
21	9.7	15	14	15	14	14	15	345	85	64	49	37
22	9.7	15	14	15	13	14	15	374	85	57	40	37
23	9.7	15	14	15	14	14	15	368	85	57	37	37
24	10	15	14	15	14	14	15	368	85	57	37	37
25	10	15	14	15	15	14	14	368	85	58	37	37
26	10	15	14	14	15	14	14	374	83	58	37	38
27	11	15	14	14	15	14	14	374	65	58	37	38
28	11	15	14	14	15	14	15	374	59	59	37	38
29	11	15	14	14	---	15	15	374	59	59	37	39
30	11	15	14	14	---	15	15	374	59	59	36	39
31	11	---	14	14	---	15	---	233	---	61	36	---
TOTAL	393.3	444	434	459	386	453	445	6904	4831	1935	1471	1110
MEAN	12.7	14.8	14.0	14.8	13.8	14.6	14.8	223	161	62.4	47.5	37.0
MAX	17	20	15	15	15	16	15	374	386	81	61	39
MIN	9.4	11	13	14	13	12	14	15	59	57	36	36
AC-FT	780	881	861	910	766	899	883	13690	9580	3840	2920	2200

CAL YR 1977 TOTAL 16256.3 MEAN 44.5 MAX 188 MIN 9.4 AC-FT 32240
WTR YR 1978 TOTAL 19265.3 MEAN 52.8 MAX 386 MIN 9.4 AC-FT 38210

06411500 RAPID CREEK BELOW PACTOLA DAM, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to September 1972, October 1973 to September 1975, October 1977 to September 1978.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 435 micromhos Feb. 8, 17, 22, 1971; minimum daily, 240 micromhos Mar. 28-30, 1971.
WATER TEMPERATURES: Maximum daily, 10.5°C July 27, Sept. 5-7, 14, 1978; minimum daily, 0.0°C on several days during December 1968.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 410 micromhos Mar. 3; minimum daily, 330 micromhos June 20, 25, 26.
WATER TEMPERATURES: Maximum daily, 10.5°C July 27, Sept. 5-7, 14; minimum daily, 2.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT										
18...	1430	9.7	370	8.4	9.0	190	36	38	22	2.7
NOV										
09...	1445	17	370	8.0	4.0	200	48	42	22	3.8
DEC										
07...	1500	14	385	8.2	4.0	180	44	39	21	3.2
FEB										
06...	1000	14	395	8.1	2.0	290	140	78	24	3.7
MAR										
08...	1430	15	360	8.1	7.0	200	46	43	23	2.8
APR										
10...	1300	15	365	7.8	6.0	200	48	42	22	3.7
MAY										
09...	1145	34	385	8.0	4.5	190	45	44	20	4.2
JUN										
15...	1330	79	385	8.3	9.0	190	48	42	20	3.1
JUL										
17...	1330	62	375	8.1	8.5	180	40	39	20	3.1
AUG										
02...	1145	60	370	7.1	9.0	180	40	39	20	3.2
SEP										
12...	1115	38	362	7.7	9.0	170	32	39	18	4.7

06411500 RAPID CREEK BELOW PACTOLA DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT 18...	3	.1	2.6	180	1	150	46	1.1	.2
NOV 09...	4	.1	2.7	180	0	150	50	1.3	.2
DEC 07...	4	.1	2.8	170	0	140	40	1.2	.2
FEB 06...	3	.1	2.9	190	0	160	44	1.1	.4
MAR 08...	3	.1	2.6	190	0	160	43	1.1	.2
APR 10...	4	.1	2.6	180	0	150	44	1.4	.2
MAY 09...	4	.1	2.7	180	0	150	44	1.4	.2
JUN 15...	3	.1	2.5	170	0	140	42	1.2	.3
JUL 17...	4	.1	2.5	170	0	140	39	1.2	.2
AUG 02...	4	.1	2.5	170	0	140	38	1.2	.2
SEP 12...	6	.2	2.6	170	0	140	42	1.5	.2

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT 18...	9.6	212	.29	5.55	.01	.01	.00	.00	20
NOV 09...	9.9	221	.30	10.1	.10	.01	.00	.00	20
DEC 07...	8.1	199	.27	7.52	.01	.01	.01	.00	20
FEB 06...	11	261	.36	9.87	.43	.03	.03	.01	30
MAR 08...	9.0	219	.30	8.87	.14	.02	.02	.01	10
APR 10...	8.3	213	.29	8.63	.03	.00	.00	.01	20
MAY 09...	8.5	214	.29	19.6	.02	.02	.00	.01	10
JUN 15...	9.0	204	.28	43.5	.04	.00	.01	.00	20
JUL 17...	9.4	198	.27	33.1	.05	.00	.00	.01	20
AUG 02...	9.0	197	.27	31.9	.07	.01	.01	.01	20
SEP 12...	9.9	202	.27	20.7	.10	.00	.00	.01	40

06411500 RAPID CREEK BELOW PACTOLA DAM, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	370	355	350	365	375	390	370	370	340	360	340	340
2	370	360	345	360	370	400	360	365	340	380	340	340
3	370	360	345	360	370	410	360	360	340	395	340	340
4	360	360	345	360	370	400	365	360	340	395	340	340
5	360	350	350	355	370	400	370	360	340	395	340	340
6	360	355	355	355	370	400	365	355	340	390	340	340
7	360	360	345	370	375	395	365	355	340	390	340	335
8	360	360	350	370	375	400	360	370	340	395	340	340
9	350	360	350	370	370	395	360	360	335	400	340	340
10	350	355	350	360	375	395	350	370	340	395	340	340
11	350	355	345	360	375	400	350	360	340	390	340	340
12	350	355	350	355	370	400	350	355	340	390	340	340
13	340	360	350	365	370	400	350	360	340	390	340	340
14	340	360	345	370	370	395	350	355	340	395	340	340
15	340	355	345	370	375	395	350	350	335	395	340	340
16	340	350	345	370	380	400	350	365	335	395	340	335
17	350	350	350	370	375	400	345	345	335	390	340	340
18	350	350	350	370	375	400	350	350	340	390	340	340
19	345	350	355	370	380	390	350	345	340	390	340	340
20	345	350	345	370	375	395	345	355	330	390	340	340
21	345	350	350	370	375	390	350	360	340	390	340	340
22	345	355	355	370	375	395	345	350	340	390	340	340
23	345	350	360	370	370	395	345	355	340	390	340	340
24	345	350	355	370	370	400	340	350	340	400	335	340
25	345	350	350	365	370	395	345	355	330	390	340	340
26	345	350	350	370	380	395	345	360	330	390	340	340
27	345	350	355	370	380	385	345	355	335	390	340	340
28	345	350	355	370	375	400	340	355	340	395	340	340
29	345	350	350	365	---	395	350	350	340	400	340	340
30	345	350	355	370	---	390	350	345	335	395	340	340
31	340	---	355	370	---	395	---	350	---	350	340	---
MEAN	350	354	350	366	374	397	352	356	338	390	340	340

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV.	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	6.5	4.5	2.5	2.5	3.5	5.0	---	7.0	---	9.0	---
2	---	7.5	4.0	3.0	3.0	2.5	6.0	8.0	7.0	---	8.0	10.0
3	---	7.0	4.5	3.0	3.5	2.0	6.0	6.5	7.0	9.0	9.0	10.0
4	---	8.0	4.5	3.5	3.5	2.5	5.5	5.5	8.5	8.0	9.0	---
5	---	8.5	3.0	3.0	3.5	3.0	5.0	5.5	7.5	9.0	8.5	10.5
6	---	7.0	3.0	3.5	3.5	3.5	4.5	5.5	7.5	---	8.5	10.5
7	---	7.5	4.0	2.0	3.0	4.0	4.5	5.0	8.0	9.5	9.5	10.5
8	---	5.0	2.5	2.5	3.5	4.5	7.0	8.0	7.5	8.0	9.5	10.0
9	---	6.0	2.5	2.5	3.0	4.5	4.0	8.5	8.0	8.0	9.5	---
10	---	6.5	3.0	2.5	4.0	5.5	5.5	6.0	7.0	9.5	9.5	8.5
11	7.5	7.0	3.5	3.0	2.5	5.5	7.0	6.5	7.5	9.5	9.5	8.5
12	---	6.0	3.0	3.0	2.5	3.0	7.0	7.0	8.0	9.0	8.5	8.5
13	9.0	6.5	3.0	2.5	3.0	4.5	4.5	6.5	9.0	7.5	8.5	9.5
14	---	6.0	4.0	3.0	3.0	4.0	6.0	6.5	8.0	9.0	8.5	10.5
15	---	5.5	3.5	2.5	2.0	4.0	4.5	7.0	9.0	9.0	9.5	9.5
16	---	---	3.5	3.0	2.5	4.0	6.0	7.0	8.0	8.5	9.0	8.0
17	---	6.0	3.5	3.5	3.5	4.0	5.5	6.5	8.0	9.0	7.5	---
18	---	6.0	3.0	3.0	3.0	4.0	4.0	6.5	9.0	8.5	7.5	9.5
19	9.5	6.0	2.5	3.5	3.0	5.0	7.5	6.5	9.0	---	---	8.5
20	9.0	4.5	2.0	3.0	4.0	5.0	8.0	7.0	8.5	---	9.5	8.5
21	7.0	5.5	2.5	3.5	3.0	6.0	7.5	6.5	8.5	8.0	9.5	10.0
22	9.0	5.0	3.0	4.0	3.0	6.0	5.0	7.0	---	8.5	9.0	9.0
23	8.5	4.5	3.0	3.0	---	3.0	8.0	7.0	---	8.5	8.0	---
24	8.0	5.0	2.0	3.0	4.5	4.5	8.5	7.0	8.0	10.0	9.5	8.5
25	9.0	4.5	2.0	2.5	4.0	5.0	9.0	7.0	10.0	---	9.0	9.5
26	8.5	5.5	2.5	3.0	3.5	7.0	9.0	7.0	---	---	8.5	8.5
27	8.5	5.0	3.0	3.0	3.5	6.0	7.5	6.5	9.0	10.5	8.0	8.5
28	8.5	4.0	3.5	3.0	2.5	4.0	6.0	6.5	9.5	8.5	7.5	9.0
29	7.5	4.0	2.5	3.0	---	6.0	6.0	6.5	9.5	8.5	9.0	8.0
30	7.0	5.0	2.0	3.5	---	6.0	5.5	6.5	9.0	10.0	9.5	7.5
31	6.0	---	2.0	2.5	---	6.5	---	7.0	---	---	10.0	---
MEAN	8.0	6.0	3.0	3.0	3.0	4.5	6.0	6.5	8.0	9.0	9.0	9.0

06412500 RAPID CREEK ABOVE CANYON LAKE, NEAR RAPID CITY, SD

LOCATION.--Lat 44°03'04", long 103°18'47", in NE¼NE¼ sec.18, T.1 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on right bank at bridge on State Highway 40, 1.0 mi (1.6 km) southwest of city limits of Rapid City and 2.8 mi (4.5 km) downstream from Victoria Creek.

DRAINAGE AREA.--371 mi² (961 km²).

PERIOD OF RECORD.--July 1946 to current year.

GAGE (CORRECTED).--Water-stage recorder. Concrete control Oct. 17, 1962, to Nov. 2, 1967 (destroyed). Datum of gage is 3,405.39 ft (1,037.963 m) National Geodetic Vertical Datum of 1929, levels by Corps of Engineers. Prior to Oct. 6, 1947, nonrecording gage, Oct. 6, 1947, to Nov. 2, 1967, and Oct. 1, 1968, to Sept. 30, 1976, water-stage recorder all at datum 2.0 ft (0.61 m) higher. Nov. 3, 1967, to Sept. 30, 1968, nonrecording gage at site 0.2 mi (0.3 km) downstream at datum 1.12 ft (0.341 m) lower.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by dam on Castle Creek since December 1945 (see station 06409500) and by Pactola Reservoir 21 mi (34 km) upstream since August 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--32 years, 39.8 ft³/s (1.127 m³/s), 28,840 acre-ft/yr (35.6 hm³/yr); median of yearly mean discharges, 35 ft³/s (0.99 m³/s), 25,400 acre-ft/yr (31 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,200 ft³/s (884 m³/s) June 9, 1972, gage height, 17.77 ft (5.416 m), present datum, from floodmarks, from rating curve extended above 1,300 ft³/s (36.8 m³/s) on basis of slope-area measurement of peak flow; no flow at times in 1950-51, 1957-60, 1962-63.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 433 ft³/s (12.3 m³/s) May 21, gage height, 5.24 ft (1.597 m); minimum daily, 2.5 ft³/s (0.071 m³/s) Nov. 10.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Nov. 10-12, 18-24, Dec. 5-13, Dec. 18 to Mar. 7)

2.8	2.2	3.5	63	5.0	373
2.9	5.6	4.0	148	6.0	663
3.1	18				

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	3.6	7.3	3.5	7.2	10	9.5	36	416	59	58	34
2	13	3.9	9.5	3.5	7.8	10	9.5	34	420	63	58	34
3	11	3.6	13	3.7	9.0	10	9.5	34	420	62	56	34
4	11	3.6	12	3.8	8.5	10	10	36	420	77	55	34
5	11	3.2	7.0	4.0	8.2	10	10	93	360	74	44	32
6	11	3.2	3.1	4.5	8.0	12	11	213	268	62	39	35
7	11	3.6	3.5	5.0	7.9	15	11	253	266	62	40	35
8	11	3.9	4.4	5.5	7.8	25	11	84	264	63	40	35
9	11	2.9	5.0	6.0	7.6	50	11	88	262	64	48	35
10	11	2.5	5.5	6.5	8.0	40	11	82	262	64	49	35
11	11	4.0	6.0	8.0	8.5	33	12	96	259	63	49	35
12	11	6.0	6.6	10	9.0	27	12	194	224	63	48	36
13	11	10	7.2	12	9.5	21	12	266	95	63	46	36
14	9.0	10	7.8	11	10	19	12	288	84	63	49	36
15	4.9	9.5	9.0	10	13	17	13	286	84	63	51	36
16	4.2	9.5	9.0	9.6	13	17	15	293	80	63	50	36
17	3.9	9.5	8.4	9.1	12	18	15	305	90	63	48	36
18	3.6	9.2	7.0	8.7	11	19	16	331	88	64	46	36
19	3.6	8.0	6.3	8.3	11	23	16	341	82	70	45	35
20	3.6	6.0	5.4	8.0	11	30	15	370	118	73	44	34
21	3.6	6.6	6.0	7.6	12	23	15	390	86	84	43	34
22	3.9	7.2	6.8	7.4	13	17	15	426	84	69	43	34
23	3.9	8.0	6.8	7.2	14	11	15	428	83	63	38	34
24	3.6	9.0	6.5	7.0	14	10	15	433	84	62	38	34
25	3.6	10	6.0	7.0	13	10	15	428	83	60	39	34
26	3.9	11	5.5	7.0	12	10	16	428	83	58	39	34
27	3.9	11	5.0	7.0	12	10	16	423	80	58	39	34
28	3.9	11	4.7	7.0	11	10	18	420	59	56	38	34
29	3.6	11	4.3	7.0	---	10	28	420	59	56	35	34
30	3.6	11	3.8	7.0	---	10	29	433	59	56	36	34
31	3.6	---	3.5	7.0	---	10	---	282	---	56	37	---
TOTAL	221.9	211.5	201.9	218.9	289.0	547	423.5	8234	5322	1976	1388	1039
MEAN	7.16	7.05	6.51	7.06	10.3	17.6	14.1	266	177	63.7	44.8	34.6
MAX	14	11	13	12	14	50	29	433	420	84	58	36
MIN	3.6	2.5	3.1	3.5	7.2	10	9.5	34	59	56	35	32
AC-FT	440	420	400	434	573	1080	840	16330	10560	3920	2750	2060

CAL YR 1977 TOTAL 13996.2 MEAN 38.3 MAX 192 MIN 2.5 AC-FT 27760
WTR YR 1978 TOTAL 20072.7 MEAN 55.0 MAX 433 MIN 2.5 AC-FT 39810

06414000 RAPID CREEK AT RAPID CITY, SD

LOCATION.--Lat 44°05'09", long 103°14'31", in SW¼SE¼ sec.35, T.2 N., R.7 E., Pennington County, Hydrologic Unit 10120110, on left bank 300 ft (91 m) upstream from Oskosh Street in Rapid City and 3.6 mi (5.8 m) downstream from Canyon Lake Dam.

DRAINAGE AREA.--410 mi^2 (1,060 km^2), approximately.

PERIOD OF RECORD.--June 1903 to November 1906, July 1942 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 3,230.00 ft (984.504 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 30, 1906, nonrecording gage at site 1 mi (1.6 km) downstream at different datum, and June 10, 1972, to Nov. 1, 1972, nonrecording gage at site 800 ft (244 m) downstream at datum 0.80 ft (0.244 m) higher. July 1942 to June 9, 1972, water-stage recorder at site 300 ft (91 m) downstream at datum 0.80 ft (0.244 m) higher (destroyed by flood).

REMARKS.--Records good except those for winter periods, which are fair. Several small diversions above station to municipal park pools and for irrigation of about 320 acres (130 hm^3). Flow regulated by Pactola Reservoir 25.4 mi (40.9 km) upstream since Aug. 22, 1956 (see station 06411000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--39 years, 62.3 ft^3/s (1.764 m^3/s), 45,140 acre-ft/yr (55.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft^3/s (1,420 m^3/s) June 9, 1972, gage height, 19.66 ft (5.992 m), from floodmarks, on basis of slope-area measurement of peak flow; minimum, 1.6 ft^3/s (0.045 m^3/s) Apr. 20, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 12, 13, 1920, reached a stage of 14.4 ft (4.39 m) present datum, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 602 ft^3/s (17.0 m^3/s) May 29, gage height, 5.58 ft (1.701 m); minimum daily discharge, 8.6 ft^3/s (0.24 m^3/s) Jan. 24 to Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	72	22	30	16	8.6	15	24	67	396	78	78	63
2	48	22	30	17	8.6	15	23	63	400	85	74	50
3	37	22	36	18	15	16	23	59	400	85	72	37
4	32	22	34	18	14	16	24	92	396	89	63	36
5	34	22	30	19	14	16	26	118	356	87	54	30
6	32	23	26	19	13	17	26	174	285	80	42	27
7	32	23	23	20	13	21	24	212	275	83	42	27
8	37	26	20	21	13	39	24	114	268	94	38	26
9	38	23	18	26	14	72	26	118	262	83	43	28
10	43	23	21	26	15	71	26	109	262	80	44	31
11	37	34	30	26	16	42	30	109	265	78	50	44
12	36	36	46	25	17	32	32	165	249	74	44	59
13	34	31	46	24	18	32	28	243	162	76	44	56
14	34	30	48	22	20	28	27	265	144	67	67	50
15	28	28	52	20	21	22	38	262	131	63	87	46
16	24	30	52	19	20	23	36	282	134	65	72	46
17	26	28	50	17	19	23	32	288	141	65	65	48
18	23	30	46	16	18	28	34	320	131	67	67	57
19	23	32	42	14	17	36	34	324	126	78	65	61
20	23	25	40	13	17	42	28	348	146	92	67	57
21	23	24	42	10	18	40	26	348	114	139	46	56
22	23	26	40	9.0	19	36	28	384	106	89	48	56
23	22	27	41	8.7	18	38	27	384	104	76	42	50
24	27	28	35	8.6	17	32	24	404	101	74	34	43
25	23	28	30	8.6	16	36	24	380	101	61	86	36
26	19	36	23	8.6	16	37	27	380	101	61	76	36
27	21	36	22	8.6	16	36	27	384	99	59	67	38
28	21	34	20	8.6	15	34	38	380	74	59	69	38
29	22	31	18	8.6	---	32	87	380	69	74	61	52
30	22	31	17	8.6	---	27	67	408	78	72	65	52
31	22	---	16	8.6	---	28	---	292	---	72	65	---
TOTAL	938	833	1024	492.5	446.2	982	940	7856	5876	2405	1837	1336
MEAN	30.3	27.8	33.0	15.9	15.9	31.7	31.3	253	196	77.6	59.3	44.5
MAX	72	36	52	26	21	72	87	408	400	139	87	63
MIN	19	22	16	8.6	8.6	15	23	59	69	59	34	26
AC-FT	1860	1650	2030	977	885	1950	1860	15580	11660	4770	3640	2650

CAL YR 1977 TOTAL 20506.0 MEAN 56.2 MAX 200 MIN 12 AC-FT 40670
WTR YR 1978 TOTAL 24965.7 MEAN 68.4 MAX 408 MIN 8.6 AC-FT 49520

06421500 RAPID CREEK NEAR FARMINGDALE, SD

LOCATION.--Lat 43°56'31", long 102°51'12", in SW¼SW¼SW¼ sec.19, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, on right bank at downstream side of bridge, 2 mi (3.2 km) southeast of Farmingdale and 4.8 mi (7.7 km) downstream from Antelope Creek.

DRAINAGE AREA.--602 mi^2 (1,559 km^2).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1946 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,700 ft (823 m), from topographic map. Prior to Sept. 19, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Pactola Reservoir 67 mi (108 km) upstream since August 22, 1956 (see station 06411000). Diversions for irrigation of about 10,000 acres (4,050 hm^2) above station.

AVERAGE DISCHARGE.--32 years, 55.7 ft^3/s (1.577 m^3/s), 40,350 acre-ft/yr (49.8 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,320 ft^3/s (207 m^3/s) June 10, 1972, gage height, 11.85 ft (3.612 m), from floodmarks, from rating curve extended above 400 ft^3/s (11.3 m^3/s) on basis of contracted-opening and flow-over-road measurement of peak flow; no flow at times in 1949, 1952-56, 1958-63, 1969-71.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 574 ft^3/s (16.3 m^3/s) May 24, gage height, 7.97 ft (2.429 m); minimum daily, 10 ft^3/s (0.28 m^3/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	41	33	20	15	35	48	98	303	44	60	23
2	114	40	31	20	20	35	46	93	405	43	71	23
3	62	41	35	21	25	36	47	78	385	63	65	25
4	47	40	30	22	27	38	45	76	386	62	61	22
5	41	41	25	25	27	40	44	128	380	61	60	18
6	38	41	22	30	30	42	45	173	334	56	48	15
7	42	41	21	28	30	44	45	382	310	54	33	13
8	44	44	20	27	34	90	48	373	278	61	27	11
9	45	46	18	27	37	100	49	184	264	86	22	10
10	45	42	31	24	37	110	48	152	251	66	18	12
11	50	42	40	26	37	130	45	134	245	68	17	14
12	43	46	45	28	35	150	46	144	258	56	24	17
13	42	49	50	26	35	270	46	268	220	40	23	24
14	40	48	52	26	35	240	44	289	119	36	20	23
15	40	48	54	25	30	220	46	296	100	32	52	22
16	39	44	52	23	28	180	57	294	89	26	78	21
17	41	45	48	24	28	150	59	296	168	28	44	21
18	42	46	45	23	30	221	57	347	132	25	39	22
19	40	40	40	20	31	263	82	355	101	21	38	29
20	39	25	38	20	33	296	60	328	88	20	38	29
21	39	25	35	19	38	158	55	347	110	63	31	28
22	39	30	35	18	40	119	51	370	87	216	25	26
23	42	35	35	20	45	89	50	383	75	99	19	24
24	41	40	35	20	45	76	49	420	83	75	17	21
25	42	42	35	18	43	63	50	390	83	69	14	20
26	42	45	34	18	41	62	48	387	80	57	33	16
27	40	43	33	17	38	62	48	388	78	51	32	15
28	40	42	31	16	35	57	50	416	73	48	24	13
29	40	39	29	15	---	54	82	396	45	48	26	18
30	42	36	26	15	---	53	164	430	38	60	21	21
31	41	---	24	15	---	48	---	413	---	63	20	---
TOTAL	1397	1227	1082	676	929	3531	1654	8828	5568	1797	1100	596
MEAN	45.1	40.9	34.9	21.8	33.2	114	55.1	285	186	58.0	35.5	19.9
MAX	114	49	54	30	45	296	164	430	405	216	78	29
MIN	38	25	18	15	15	35	44	76	38	20	14	10
AC-FT	2770	2430	2150	1340	1840	7000	3280	17510	11040	3560	2180	1180

CAL YR 1977 TOTAL 21328.9 MEAN 58.4 MAX 441 MIN 7.8 AC-FT 42310
WTR YR 1978 TOTAL 28385.0 MEAN 77.8 MAX 430 MIN 10 AC-FT 56300

06421500 RAPID CREEK NEAR FARMINGDALE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1953, 1956-58, 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1955 to September 1958, October 1968 to current year.
WATER TEMPERATURES: October 1955 to September 1958, October 1968 to September 1969, October 1971 to September 1975.

REMARKS.--There are many days of no samples throughout the year. Specific conductance for these days was computed using a discharge-conductance ratio.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,650 micromhos Oct. 16, 1956; minimum daily, 360 micromhos June 6, 1978.
WATER TEMPERATURES: Maximum daily, 34.0°C June 12, 1936; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,300 micromhos Feb. 9; minimum daily, 360 micromhos June 6.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT										
19...	1600	41	1200	8.2	12.0	480	260	110	49	45
NOV										
08...	1215	48	935	8.4	5.0	440	220	110	41	66
DEC										
06...	1445	22	1200	8.0	.0	500	260	120	49	68
FEB										
09...	1530	37	1300	7.8	.0	400	180	100	37	49
MAR										
07...	1400	43	1050	7.7	.0	420	190	100	41	57
14...	1200	244	550	7.9	1.5	170	73	44	15	20
MAY										
09...	1000	187	800	8.5	8.5	350	190	86	33	28
JUL										
06...	1030	61	785	8.2	19.5	350	180	82	35	32
AUG										
03...	1145	67 67	840	7.2	18.0	330	160	77	34	34
SEP										
11...	1015	14	1220	8.3	21.0	470	260	110	47	65

06421500 RAPID CREEK NEAR FARMINGDALE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT									
19...	17	.9	7.2	260	0	210	290	41	.6
NOV									
08...	24	1.4	6.9	250	13	230	260	66	.7
DEC									
06...	23	1.3	6.7	300	0	250	290	53	.6
FEB									
09...	21	1.1	5.7	270	0	220	210	53	.7
MAR									
07...	23	1.2	6.6	280	0	230	220	61	.6
14...	19	.7	10	120	0	98	100	15	.3
MAY									
09...	15	.7	5.8	200	0	160	210	14	.3
JUL									
06...	16	.7	6.2	200	0	160	200	27	.5
AUG									
03...	18	.8	5.4	210	0	170	170	26	.6
SEP									
11...	23	1.3	7.7	260	0	210	320	50	.7

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)
OCT									
19...	6.0	688	.94	76.2	2.0	1.0	.86	.74	210
NOV									
08...	.4	699	.95	90.6	2.1	.95	.99	.79	200
DEC									
06...	7.1	754	1.03	44.8	1.8	1.5	1.4	1.1	190
FEB									
09...	11	611	.83	61.0	1.6	1.7	2.0	1.4	150
MAR									
07...	11	643	.87	74.7	.78	2.2	2.0	1.5	140
14...	7.5	276	.38	182	.74	.80	.51	.43	130
MAY									
09...	9.4	489	.67	247	.87	.76	.16	.10	100
JUL									
06...	8.7	495	.67	81.5	.89	.57	.42	.39	140
AUG									
03...	8.5	467	.64	84.4	1.4	.82	.66	.66	140
SEP									
11...	2.6	733	1.00	27.7	.12	.47	.30	.31	260

06421500 RAPID CREEK NEAR FARMINGDALE, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	840	1000	1140	1100	1010	1060	1010	850	510	780	790	1030
2	860	1080	1100	1100	1010	1060	1020	920	470	840	740	1060
3	680	1020	1060	1100	1010	1060	1040	980	460	780	780	1080
4	690	1040	960	1100	1050	1060	1010	1040	460	750	760	990
5	830	1100	1080	1050	1100	1050	1000	1000	440	750	760	1000
6	880	1070	1280	1080	1200	1050	980	820	360	780	800	1040
7	890	1050	1280	1060	1200	1050	1000	800	500	740	790	1020
8	880	1000	1280	1050	1200	1000	1010	730	530	760	860	1040
9	900	990	1110	1050	1300	1000	1000	880	490	710	870	1070
10	920	950	1350	1050	1200	1000	1010	940	490	750	860	1120
11	840	960	1200	1050	1200	950	1040	890	490	690	920	1110
12	840	1000	1120	1050	1100	900	1000	810	490	730	1020	1130
13	860	1040	1120	1040	1100	800	980	660	460	790	950	1210
14	840	1060	1000	1040	1100	490	1000	520	550	850	1000	1210
15	380	960	980	1030	1100	530	990	520	670	880	1050	1130
16	400	900	980	1030	1090	620	1000	510	700	890	860	1060
17	420	900	940	1020	1090	650	1020	490	690	850	710	1020
18	400	950	1000	1020	1090	630	960	530	660	880	650	1000
19	750	980	1000	1020	1090	520	1020	560	660	890	750	1000
20	740	1000	1020	1010	1080	500	1040	560	730	1010	850	950
21	770	1040	1020	1010	1080	630	1030	530	720	980	880	900
22	780	1080	1080	1010	1080	650	1010	500	640	610	840	875
23	750	1020	1100	1010	1080	770	1030	500	710	730	880	930
24	820	1060	1120	1010	1070	930	1030	570	680	890	870	860
25	780	1080	1100	1000	1070	1040	1020	630	730	850	950	840
26	750	1100	1080	1000	1070	990	990	600	680	860	1050	860
27	750	1040	1060	1000	1070	1220	980	500	660	810	1100	870
28	610	1020	1040	1000	1070	1060	1020	480	640	870	1100	950
29	380	1140	1020	1000	---	1010	1000	490	740	860	1140	960
30	400	1140	1050	1000	---	1020	980	480	750	840	870	940
31	960	---	1100	1000	---	1060	---	540	---	---	930	---
MEAN	729	1030	1098	1040	1100	883	1010	672	592	813	883	1010

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.5	---	.0			---	11.5	10.5	11.5	24.0	22.5	19.0
2	13.0	5.0	.0			---	10.0	11.0	12.0	23.5	19.0	20.0
3	14.0	6.5	.0			---	10.5	12.0	14.0	22.5	12.0	25.5
4	13.0	5.5	.5			---	9.0	12.5	15.0	24.5	12.0	21.0
5	12.0	9.0	.0			---	11.0	12.5	15.0	23.5	19.5	21.5
6	12.5	9.5	.0			---	9.0	10.0	16.0	23.5	21.0	21.0
7	11.0	6.0	---			---	10.5	7.0	15.0	20.5	22.5	21.5
8	9.0	---	.0			---	9.5	6.5	18.5	21.5	22.0	20.5
9	11.5	2.5	.0			---	9.0	14.5	17.5	21.0	22.5	21.0
10	9.0	2.5	.0			---	6.5	12.0	18.0	20.0	23.5	21.0
11	7.5	3.5	---			---	5.0	13.5	17.0	24.5	23.0	21.0
12	9.5	4.5	.0			---	8.0	13.0	16.0	22.5	23.5	16.0
13	11.5	3.0	1.0			---	5.5	17.0	17.0	20.5	25.0	14.0
14	11.0	6.0	---			1.5	8.5	17.0	25.0	22.5	24.0	14.0
15	10.0	5.0	.5			1.0	8.0	16.5	27.5	25.5	19.0	14.5
16	---	4.5	1.0			1.5	6.5	17.5	22.5	27.0	19.5	16.0
17	12.0	2.5	.5			1.5	7.5	16.5	20.5	25.0	21.0	15.5
18	12.0	---	.0			2.5	5.5	14.0	20.5	22.5	18.0	13.5
19	12.5	---	---			1.5	5.5	13.0	20.5	22.0	18.5	12.0
20	10.5	---	---			2.5	6.5	12.5	19.5	21.5	18.5	11.5
21	11.0	---	.0			1.5	7.5	15.0	19.0	19.0	20.0	10.0
22	12.0	1.0	.0			2.5	8.5	15.0	.0	20.0	20.5	11.5
23	11.0	.0	---			1.5	7.5	15.5	27.0	24.0	22.0	12.5
24	11.0	---	.0			1.5	8.5	16.5	24.0	21.0	22.0	14.0
25	12.0	---	---			4.5	16.0	16.5	26.5	23.5	23.5	15.5
26	12.5	.5	---			6.5	12.5	16.5	24.5	22.5	22.5	15.5
27	12.0	.5	---			12.0	13.5	15.0	21.0	22.5	23.0	14.5
28	12.0	.0	---			10.0	15.0	14.0	22.5	24.5	18.0	15.0
29	12.0	1.0	.0			9.0	12.5	12.5	28.0	23.0	18.0	15.0
30	12.0	.0	---			11.0	11.5	14.0	27.0	22.0	17.0	12.5
31	8.5	---	.0			14.5	---	13.0	---	23.0	18.5	---
MEAN	11.5	3.5	.0			5.0	9.0	13.5	19.5	22.5	20.5	16.5

06422500 BOXELDER CREEK NEAR NEMO, SD

LOCATION.--Lat 44°08'38", long 103°27'16", in SE¼SE¼ sec.12, T.2 N., R.5 E., Lawrence County, Hydrologic Unit 10120111, on right bank at ranch 0.2 mi (0.3 km) upstream from county line, 0.9 mi (1.4 km) downstream from Jim Creek and 4.5 mi (7.2 km) southeast of Nemo.

DRAINAGE AREA.--96 mi² (249 km²), approximately.

PERIOD OF RECORD.--July 1945 to July 1947, May 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 4,320.27 ft (1,316.818 m) National Geodetic Vertical Datum of 1929. July 1945 to July 1947 nonrecording gage at site 100 ft (30 m) upstream at different datum. May 17, 1966, to June 9, 1972, water-stage recorder (destroyed by flood) and June 10, 1972, to Aug. 8, 1972, nonrecording gage, both at site 100 ft (30 m) upstream at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years (water years 1946, 1967-78), 21.9 ft³/s (0.620 m³/s), 15,870 acre-ft/yr (19.6 hm³/yr); median of yearly mean discharges, 21 ft³/s (0.59 m³/s) 15,200 acre-ft/yr (19 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,100 ft³/s (852 m³/s) June 9, 1972, gage height, 20.4 ft (6.22 m), site and datum then in use, 22.0 ft (6.71 m), present site and datum, from floodmarks, from rating curve extended above 600 ft³/s (17.0 m³/s) on basis of slope-area measurement of peak flow; minimum daily, 0.70 ft³/s (0.020 m³/s) Dec. 30, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1911 reached a stage of about 16 ft (4.9 m), present datum.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
May 1	1100	109	3.09	2.73	0.832	May 18	1515	260	7.36	3.51	1.070
May 6	0130	142	4.02	2.94	0.896	Aug. 23	2315	113	3.20	2.96	0.902
May 11	0015	*301	8.52	*3.65	1.113						

Minimum daily discharge, 2.4 ft³/s (0.068 m³/s) Feb. 16.

DISCHARGE. IN CUBIC FEET PER SECOND. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	6.8	6.0	3.5	2.8	4.8	14	96	60	24	18	11
2	13	6.8	6.0	3.5	2.8	4.8	13	76	56	31	18	11
3	11	6.6	6.0	4.4	3.0	4.5	13	67	53	20	17	11
4	9.8	6.6	5.5	4.2	3.8	4.6	12	125	51	17	17	11
5	9.2	6.6	5.0	4.3	3.6	4.8	11	124	49	15	16	11
6	8.9	6.4	4.8	4.5	3.7	4.8	11	131	48	15	15	11
7	8.9	6.4	4.8	4.2	3.7	5.0	9.9	132	45	17	14	10
8	9.5	6.2	4.5	4.2	3.7	5.2	9.8	119	43	21	13	10
9	9.8	5.1	4.0	4.4	3.7	6.5	9.8	152	40	20	13	10
10	9.8	5.9	4.0	4.6	3.7	6.5	9.7	232	38	18	14	9.8
11	9.3	6.5	4.0	4.8	3.6	7.0	9.2	261	37	15	14	9.8
12	9.0	6.5	4.5	5.0	3.5	7.0	9.6	236	36	13	14	9.7
13	9.5	6.3	5.0	4.8	3.5	9.6	9.2	201	33	13	15	9.7
14	9.5	6.6	5.5	4.6	3.0	16	9.0	169	31	15	19	9.6
15	9.2	6.4	6.0	4.5	2.5	18	9.5	146	29	15	16	9.3
16	8.7	6.0	6.0	4.0	2.4	11	9.5	125	28	17	14	9.0
17	8.7	5.2	5.5	4.2	2.8	21	9.5	117	37	19	14	8.7
18	8.4	5.9	4.5	3.8	3.2	23	10	190	35	19	13	9.8
19	8.1	6.0	4.0	3.5	3.0	37	8.1	143	27	17	12	9.7
20	7.9	5.0	4.0	3.5	3.5	40	9.5	122	25	19	12	9.5
21	7.9	4.0	4.5	3.8	4.0	31	12	114	24	33	11	9.2
22	7.9	4.5	5.0	4.0	4.5	30	15	110	23	48	12	8.7
23	8.1	4.5	5.0	4.4	5.0	18	15	102	21	28	17	8.6
24	8.1	5.0	4.5	4.4	5.0	14	16	92	21	23	45	8.1
25	7.9	5.0	4.0	4.0	5.0	16	17	83	20	20	19	8.1
26	7.9	6.5	4.0	3.5	5.2	15	17	78	19	18	18	7.6
27	7.4	6.0	4.0	3.2	5.0	19	14	71	19	17	15	7.6
28	7.4	6.5	4.5	3.4	4.8	18	21	70	18	17	14	7.9
29	7.4	6.5	4.5	3.4	---	16	86	67	17	17	13	7.9
30	7.2	6.5	4.0	3.2	---	15	68	76	18	18	12	7.9
31	7.2	---	3.8	3.0	---	15	---	66	---	17	12	---
TOTAL	274.6	178.8	147.4	124.8	104.0	448.1	487.3	3893	1001	616	486	282.2
MEAN	8.86	5.96	4.75	4.03	3.71	14.5	16.2	126	33.4	19.9	15.7	9.41
MAX	13	6.8	6.0	5.0	5.2	40	86	261	60	48	45	11
MIN	7.2	4.0	3.8	3.0	2.4	4.5	8.1	66	17	13	11	7.6
AC-FT	545	355	292	248	206	889	967	7720	1990	1220	964	560

CAL YR 1977 TOTAL 6802.9 MEAN 18.6 MAX 140 MIN 3.8 AC-FT 13490
WTR YR 1978 TOTAL 8043.2 MEAN 22.0 MAX 261 MIN 2.4 AC-FT 15950

06423500 CHEYENNE RIVER NEAR WASTA, SD

LOCATION.--Lat 44°04'52", long 102°24'03", in NE¼NE¼NW¼ sec.2, T.1 N., R.14 E., Pennington County, Hydrologic Unit 10120111, on left bank at downstream side of highway bridge, 200 ft (61 m) downstream from Chicago and North Western Transportation Co. bridge, 3.0 mi (4.8 m) east of Wasta, and 8.6 mi (13.8 m) downstream from Boxelder Creek.

DRAINAGE AREA.--12,800 mi^3 (33,200 km^2), approximately.

PERIOD OF RECORD.--July 1914 to June 1915, August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309. Records for Feb. 19-28, 1930, published in WSP 701, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1279: 1930(M), 1931, 1937. See also Period of Record.

GAGE.--Water-stage recorder. Datum of gage is 2,260.78 ft (689.086 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 1, 1940, nonrecording gage at site 50 ft (15 m) upstream; Aug. 1, 1940, to Dec. 3, 1940, nonrecording gage and Dec. 4, 1940, to Sept. 30, 1968, water-stage recorder at present site all at datum 2.00 ft (0.610 m) higher. Oct. 1, 1968, to Sept. 30, 1972, at datum 1.00 ft (0.305 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Angostura Reservoir 108 mi (174 km) upstream (see station 06401000) since October 1949 and by upstream reservoirs on Rapid Creek since August 1956. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--47 years (water years 1929-31, 1935-78), 359 ft^3/s (10.17 m^3/s), 260,000 acre-ft/yr (321 hm^3/yr); median of yearly mean discharges, 310 ft^3/s (8.78 m^3/s), 225,000 acre-ft/yr (280 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 46,300 ft^3/s (1,310 m^3/s) May 6, 1932, gage height, 13.28 ft (4.048 m), present datum, from rating curve extended above 11,000 ft^3/s (312 m^3/s) on basis of an incomplete discharge measurement at gage height 10.65 ft (3.246 m), present datum; maximum gage height observed, 14.5 ft (4.42 m), present datum, June 13, 1915; minimum discharge, 0.6 ft^3/s (0.017 m^3/s) July 27, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1920 reached a stage of 18 ft (5.5 m), present datum, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 24,800 ft^3/s (702 m^3/s) May 22, gage height, 12.12 ft (3.694 m); minimum daily, 44 ft^3/s (1.25 m^3/s) Nov. 21, 22.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1390	129	80	77	70	80	206	683	1200	170	346	131
2	1000	119	79	77	70	80	185	456	903	170	392	122
3	412	120	76	76	75	80	186	401	890	170	720	119
4	196	124	72	76	80	80	169	374	722	165	656	120
5	142	114	68	76	80	80	161	319	646	160	477	111
6	127	117	60	80	80	80	158	387	568	142	386	102
7	126	118	50	75	80	80	147	1350	531	131	365	92
8	120	152	46	75	80	95	143	1960	499	127	341	85
9	121	207	47	75	80	200	138	1180	425	137	313	77
10	124	152	50	75	80	1500	136	777	455	149	299	69
11	141	194	54	80	80	4500	128	1120	461	131	287	70
12	173	206	67	80	80	4400	129	2080	413	145	223	73
13	126	198	90	75	80	3940	125	3100	374	117	163	81
14	120	180	112	75	80	2410	121	1790	347	93	148	93
15	116	151	130	75	75	1730	120	1920	274	86	286	99
16	107	133	135	75	75	1500	128	1300	248	74	597	97
17	105	110	140	75	75	1130	152	1040	239	70	291	91
18	108	90	135	75	80	2180	213	1020	286	73	212	96
19	110	70	130	75	80	3180	715	1070	238	71	189	99
20	111	53	125	75	80	2900	438	3500	180	64	176	113
21	111	44	120	80	85	2110	280	11800	190	535	160	114
22	114	44	110	80	85	1250	232	19100	190	3650	143	112
23	114	45	103	80	85	760	350	7910	160	720	138	107
24	115	50	98	80	85	493	202	2970	150	351	128	100
25	116	58	94	75	85	373	175	1500	165	254	116	89
26	115	70	90	75	80	378	155	1200	165	274	442	83
27	135	80	88	75	80	388	109	1090	165	677	328	82
28	124	81	86	75	80	360	165	885	165	1060	713	75
29	118	82	83	75	---	319	264	838	170	772	331	74
30	119	82	80	75	---	276	1340	2080	170	423	199	72
31	134	---	79	75	---	242	---	3150	---	364	153	---
TOTAL	6290	3373	2777	2367	2225	37174	7170	78350	11589	11525	9718	2848
MEAN	203	112	89.6	76.4	79.5	1199	239	2527	386	372	313	94.9
MAX	1390	207	140	80	85	4500	1340	19100	1200	3650	720	131
MIN	105	44	46	75	70	80	109	319	150	64	116	69
AC-FT	12480	6690	5510	4690	4410	73730	14220	155400	22990	22860	19280	5650

CAL YR 1977 TOTAL 85020 MEAN 233 MAX 4450 MIN 17 AC-FT 168600
WTR YR 1978 TOTAL 175406 MEAN 481 MAX 19100 MIN 44 AC-FT 347900

06425500 ELK CREEK NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°14'54", long 102°30'10", in SW¼NW¼ sec.1, T.3 N., R.13 E., Meade County, Hydrologic Unit 10120111, on left bank near downstream end of county highway bridge, 1.4 mi (2.3 km) downstream from Hay Draw, 5.0 mi (8.0 km) southeast of Elm Springs, and 7.0 mi (11.3 km) upstream from mouth.

DRAINAGE AREA.--540 mi^2 (1,400 km^2), approximately.

PERIOD OF RECORD.--July 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,304.49 ft (702.409 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 2, 1976, nonrecording gage, and prior to Feb. 1, 1967, at site 350 ft (107 m) downstream at present datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 24.2 ft^3/s (0.685 m^3/s), 17,530 acre-ft/yr (21.6 hm^3/yr); median of yearly mean discharges, 20 ft^3/s (0.57 m^3/s), 14,500 acre-ft/yr (18 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,540 ft^3/s (242 m^3/s) Mar. 29, 1952, gage height, 10.61 ft (3.234 m), from floodmarks, site and datum then in use, from rating curve extended above 5,100 ft^3/s (144 m^3/s); maximum gage height, 11.0 ft (3.35 m) May 29, 1962, from floodmarks, site and datum then in use; no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, about 17 ft (5.2 m), at former site, in May 1920, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 18	0700	*2830	80.1	*9.75	2.972	May 9	1300	624	17.7	7.24	2.207

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.2	.15	.15	.00	.00	.00	54	15	31	3.6	1.2	.00
2	1.8	.15	.15	.00	.00	.00	39	25	30	3.6	.10	.00
3	.85	.15	.15	.00	.00	.00	34	25	28	3.0	.10	.00
4	.42	.20	.15	.00	.00	.00	31	29	28	2.8	.00	.00
5	.20	.20	.15	.00	.00	.00	25	25	26	2.1	.00	.00
6	.10	.20	.15	.00	.00	.00	22	22	29	1.5	.00	.00
7	.10	.20	.15	.00	.00	.00	14	157	24	1.7	.00	.00
8	.10	.30	.15	.00	.00	.00	12	304	26	2.8	.00	.00
9	.20	.10	.10	.00	.00	.20	11	491	25	3.2	.00	.00
10	.42	.10	.10	.00	.00	1.0	11	286	17	2.6	.00	.00
11	.20	.10	.10	.00	.00	10	9.2	125	14	2.6	.00	.00
12	.10	.10	.10	.00	.00	20	12	63	13	2.3	.00	.00
13	.10	.10	.10	.00	.00	35	10	90	12	1.8	.00	.00
14	.10	.10	.10	.00	.00	50	7.2	103	11	1.7	.00	.00
15	.10	.10	.10	.00	.00	540	7.2	92	11	1.3	2.5	.00
16	.10	.10	.05	.00	.00	600	7.2	77	9.6	.96	2.2	.00
17	.10	.00	.00	.00	.00	1100	7.5	63	10	.63	.63	.00
18	.10	.00	.00	.00	.00	1930	24	58	10	.00	.00	.00
19	.10	.00	.00	.00	.00	1510	71	50	8.9	.00	.00	.00
20	.10	.00	.00	.00	.00	1350	71	54	6.9	.00	.00	.00
21	.10	.00	.00	.00	.00	935	38	92	6.7	1.4	.00	.00
22	.10	.00	.00	.00	.00	619	28	70	8.2	1.3	.49	.00
23	.10	.00	.00	.00	.00	354	23	59	8.5	1.2	.14	.00
24	.10	.00	.00	.00	.00	207	16	50	7.5	1.8	.00	.00
25	.15	.00	.00	.00	.00	161	14	45	6.4	2.2	.00	.00
26	.15	.00	.00	.00	.00	146	12	42	4.3	4.8	.00	.00
27	.15	.10	.00	.00	.00	151	10	36	3.9	4.5	.57	.00
28	.15	.10	.00	.00	.00	141	9.6	35	3.4	3.6	.96	.00
29	.15	.10	.00	.00	---	116	22	33	3.6	2.8	.03	.00
30	.15	.10	.00	.00	---	97	21	33	4.1	2.1	.00	.00
31	.15	---	.00	.00	---	71	---	32	---	1.4	.00	---
TOTAL	15.94	2.75	1.95	.00	.00	10144.20	672.9	2681	427.0	65.29	8.92	.00
MEAN	.51	.092	.063	.000	.000	327	22.4	86.5	14.2	2.11	.29	.000
MAX	9.2	.30	.15	.00	.00	1930	71	491	31	4.8	2.5	.00
MIN	.10	.00	.00	.00	.00	.00	7.2	15	3.4	.00	.00	.00
AC-FT	32	5.5	3.9	.00	.00	20120	1330	5320	847	130	18	.00

CAL YR 1977 TOTAL 7138.15 MEAN 19.6 MAX 1260 MIN .00 AC-FT 14160
WTR YR 1978 TOTAL 14019.95 MEAN 38.4 MAX 1930 MIN .00 AC-FT 27810

06427000 KEYHOLE RESERVOIR NEAR MOORCROFT, WY

LOCATION.--Lat 44°22'55", long 104°46'45", in NW¼NW¼ sec.27, T.51 N., R.66 W., Crook County, Hydrologic Unit 10120201, at reservoir dam on Belle Fourche River 12 mi (19 km) northeast of Moorcroft.

DRAINAGE AREA.--2,000 mi^2 (5,180 km^2), approximately.

PERIOD OF RECORD.--March 1952 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929 (Bureau of Reclamation datum). Prior to May 15, 1958, and Oct. 1, 1968, to Mar. 13, 1970, nonrecording gages, and May 15, 1958, to Sept. 30, 1968, water-stage recorder, all at present site and datum.

REMARKS.--Reservoir is formed by a zoned earth-fill dam completed by the Bureau of Reclamation Oct. 25, 1952. Storage began Feb. 12, 1952. Dead storage, below elevation 4,036.0 ft (1,230.17 m), 1,170 acre-ft (1.44 hm^3). Inactive storage, between elevations 4,036.0 ft (1,230.17 m) and 4,051.0 ft (1,234.74 m). 8,310 acre-ft (10.2 hm^3). Total capacity below elevation 4,099.3 ft (1,249.47 m), crest of spillway, 199,900 acre-ft (246 hm^3). Figures given herein represent total contents. The reservoir provides flood control and water for irrigation in Wyoming and near Belle Fourche, SD.

COOPERATION.--Records furnished by the Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 200,744 acre-ft (248 hm^3) May 21, 1978, elevation, 4,100.38 ft (1,249.796 m); minimum daily contents (since appreciable storage was attained), 6,030 acre-ft (7.43 hm^3) Mar. 8, 9, 1955, elevation, 4,046.35 ft (1,233.327 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 200,744 acre-ft (248 hm^3) May 21, elevation, 4,100.38 ft (1,249.796 m); minimum, 102,571 acre-ft (126 hm^3) Nov. 30, elevation, 4,087.64 ft (1,245.916 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS, IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	4087.89	104025	
Oct. 31	4088.00	104665	+640
Nov. 30	4087.64	102571	-2094
Dec. 31	4087.67	102745	+174
CAL YR 1977			-18787
Jan. 31	4087.68	102803	+58
Feb. 28	4087.75	103211	+408
Mar. 31	4093.64	142615	+39404
Apr. 30	4093.78	143664	+1049
May 31	4098.22	180444	+36780
June 30	4096.24	163253	-17191
July 31	4096.17	162662	-591
Aug. 31	4095.32	155709	-6953
Sept. 30	4094.51	149290	-6419
WTR YR 1978			+45265

06428500 BELLE FOURCHE RIVER AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°44'59", long 104°02'49", in NE¼NW¼NW¼ sec.18, T.9 N., R.1 E., Butte County, Hydrologic Unit 10120202, on left bank 0.3 mi (0.5 km) downstream from State line, 3.7 mi (6.0 km) downstream from Oak Creek and 11 mi (18 km) northwest of Belle Fourche, SD.

DRAINAGE AREA.--3,280 mi² (8,500 km²), approximately.

PERIOD OF RECORD.--December 1946 to current year. Records for water year 1947 incomplete, yearly estimate published in WSP 1729.

GAGE.--Water-stage recorder. Datum of gage is 3,095.7 ft (943.57 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are poor. Diversions above station for irrigation of about 5,400 acres (2,200 hm²). Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft (236 hm³), 143 mi (230 km) upstream since Oct. 25, 1952. Water-quality records for the station are published in the annual report "Water Resources Data for Wyoming."

AVERAGE DISCHARGE.--32 years, 92.6 ft³/s (2.622 m³/s), 67,090 acre-ft/yr (82.7 hm³/yr); median of yearly mean discharges, 93 ft³/s (2.63 m³/s), 67,400 acre-ft/yr (83 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,400 ft³/s (125 m³/s) June 18, 1962, gage height, 15.59 ft (4.752 m); no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,100 ft³/s (59.5 m³/s) May 20, gage height, 11.24 ft (3.426 m); minimum daily, 15 ft³/s (0.42 m³/s) Dec. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	133	23	21	18	19	18	524	257	1610	120	104	92
2	148	24	21	18	19	18	394	196	1580	119	107	86
3	63	24	23	18	19	18	311	169	1550	230	102	82
4	79	25	23	18	22	18	253	387	1520	203	104	71
5	94	26	21	19	22	20	214	859	1510	157	108	60
6	78	26	21	20	22	20	181	813	1500	134	101	53
7	101	26	23	19	20	30	156	859	1480	115	89	50
8	144	26	20	18	20	40	138	1560	1490	112	78	48
9	63	22	15	18	20	60	120	1120	1500	112	72	47
10	54	22	18	18	20	60	106	1010	1110	105	71	45
11	49	29	21	19	20	80	99	1680	416	115	69	46
12	51	28	22	19	19	150	94	1820	321	108	65	48
13	51	27	23	19	19	300	89	1090	280	96	92	51
14	49	29	24	19	18	500	85	734	252	90	95	53
15	47	26	24	19	17	550	81	549	232	85	96	52
16	44	26	23	18	17	540	82	444	246	84	99	51
17	41	22	22	18	17	474	77	383	213	78	79	51
18	39	20	22	17	18	834	80	536	214	70	93	49
19	36	20	21	17	19	945	93	1050	196	67	97	41
20	35	18	21	18	18	1110	91	1650	181	67	99	38
21	34	16	21	18	20	1000	81	1980	173	101	96	37
22	33	17	21	19	20	824	77	1530	172	95	92	36
23	31	18	20	19	20	713	77	1280	166	81	89	34
24	30	19	19	19	20	842	89	1460	151	136	89	33
25	29	20	19	18	19	670	88	1440	144	156	89	32
26	28	25	19	18	18	515	91	1530	134	134	86	31
27	27	25	18	18	18	669	97	1540	131	120	86	30
28	24	25	20	19	18	830	101	1560	127	110	82	30
29	24	25	20	19	---	921	133	1550	124	108	82	29
30	24	24	19	19	---	779	222	1570	122	104	86	29
31	23	---	18	18	---	618	---	1620	---	106	91	---
TOTAL	1706	703	643	571	538	14166	4324	34226	18845	3518	2788	1435
MEAN	55.0	23.4	20.7	18.4	19.2	457	144	1104	628	113	89.9	47.8
MAX	148	29	24	20	22	1110	524	1980	1610	230	108	92
MIN	23	16	15	17	17	18	77	169	122	67	65	29
AC-FT	3380	1390	1280	1130	1070	28100	8580	67890	37380	6980	5530	2850

CAL YR 1977 TOTAL 30259 MEAN 82.9 MAX 870 MIN 12 AC-FT 60020
WTR YR 1978 TOTAL 83463 MEAN 229 MAX 1980 MIN 15 AC-FT 165500

06429500 COLD SPRINGS CREEK AT BUCKHORN, WY

LOCATION.--Lat 44°09'14", long 104°04'39", in NW¼ sec.9, T.48 N., R.60 W., Weston County, Hydrologic Unit 10120303, on right shoulder of Cold Springs Creek road, 155 ft (47 m) upstream from centerline of U.S. Highway 85, and 0.5 mi (0.8 km) northeast of Buckhorn.

DRAINAGE AREA.--19.0 mi^3 (49.2 km^2).

PERIOD OF RECORD.--October 1974 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 6,090 ft (1,855 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12 ft^3/s (0.34 m^3/s) July 1, 1978, gage height, 4.91 ft (1.497 m); maximum gage height, 6.77 ft (2.063 m) Apr. 4, 1975, backwater from snow; minimum daily discharge, 2.0 ft^3/s (0.057 m^3/s) Mar. 28, 1975.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 12 ft^3/s (0.34 m^3/s) July 1, gage height, 4.91 ft (1.497 m); maximum gage height, 5.85 ft (1.783 m) Jan. 5 (backwater from ice); minimum daily discharge, 2.8 ft^3/s (0.079 m^3/s) Apr. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.0	5.6	4.9	4.4	5.0	5.0	5.2	4.8	5.9	6.5	4.4	4.6
2	6.0	5.2	4.8	4.6	5.0	4.6	5.2	4.6	6.1	5.5	4.3	4.4
3	6.0	5.2	4.7	4.8	5.0	4.3	5.0	4.8	6.1	5.2	4.4	4.4
4	6.0	4.8	4.6	5.2	5.2	4.4	5.2	5.0	5.9	5.2	4.3	4.4
5	6.0	4.4	4.5	5.2	5.2	4.6	5.0	4.8	5.9	5.2	4.3	4.4
6	6.0	4.4	4.4	5.0	5.2	5.0	5.0	4.8	5.7	5.2	4.3	4.4
7	6.0	4.2	4.2	4.8	5.0	4.8	5.2	4.8	5.7	5.2	4.4	4.1
8	6.0	4.2	4.0	4.8	5.0	5.0	5.0	3.5	5.9	5.7	4.4	4.1
9	6.0	4.4	4.1	4.4	5.0	5.0	5.2	4.5	5.7	5.5	4.4	4.1
10	6.0	4.4	4.1	4.2	5.0	5.2	5.2	5.2	5.7	5.2	4.4	4.1
11	6.0	4.6	4.2	4.2	5.0	4.8	5.2	5.2	5.7	5.2	4.4	4.1
12	5.4	4.7	4.2	4.2	5.0	5.0	5.5	5.5	5.5	5.2	4.4	4.1
13	5.4	4.8	4.2	4.4	4.5	4.6	5.7	5.2	5.2	5.2	4.3	4.1
14	5.6	4.9	4.3	4.6	4.0	4.8	5.2	5.0	5.5	5.0	4.4	4.1
15	5.6	5.1	4.3	4.8	3.9	5.2	5.2	5.0	5.7	5.0	4.4	4.3
16	5.6	5.2	4.3	4.8	4.1	5.0	5.2	5.0	5.7	5.2	4.4	4.1
17	5.6	5.2	4.3	4.8	4.2	5.2	5.2	5.5	5.7	5.2	4.4	4.1
18	5.4	5.0	4.2	5.2	4.4	5.2	2.8	5.9	5.5	4.8	4.4	4.6
19	5.4	4.8	4.1	4.8	4.6	5.0	4.0	6.1	5.5	5.0	4.4	4.4
20	5.4	4.6	4.0	5.0	4.7	4.8	5.0	5.7	5.2	5.2	4.4	4.3
21	5.4	4.7	3.9	5.4	4.7	4.8	5.5	5.7	5.2	5.4	4.3	4.4
22	5.4	5.0	3.8	5.8	5.0	4.8	5.5	5.9	5.2	4.8	4.4	4.8
23	5.2	5.1	4.0	5.5	5.2	4.8	5.2	5.9	5.2	4.8	4.4	4.6
24	5.4	5.2	4.0	5.2	5.2	4.8	5.0	5.9	5.0	4.6	4.4	4.6
25	5.2	5.2	3.8	3.9	4.8	4.8	5.2	5.9	5.2	4.8	4.3	4.6
26	5.4	5.2	4.0	4.0	5.2	4.8	5.0	5.9	5.5	4.8	4.3	4.6
27	5.4	5.2	4.1	4.3	5.2	5.2	5.2	5.9	5.5	4.8	4.6	4.6
28	5.2	5.1	4.3	4.6	5.0	5.2	5.2	5.9	5.2	4.8	4.6	4.8
29	5.0	5.0	4.5	4.8	---	5.0	5.2	5.9	5.2	4.8	4.6	4.8
30	5.0	4.9	4.4	4.9	---	5.2	4.8	6.1	5.5	4.6	4.6	4.8
31	5.0	---	4.4	5.0	---	4.8	---	5.9	---	4.4	4.6	---
TOTAL	173.0	146.3	131.6	147.6	135.3	151.7	152.0	165.8	166.5	158.0	136.6	131.8
MEAN	5.58	4.88	4.25	4.76	4.83	4.89	5.07	5.35	5.55	5.10	4.41	4.39
MAX	6.0	5.6	4.9	5.8	5.2	5.2	5.7	6.1	6.1	6.5	4.6	4.8
MIN	5.0	4.2	3.8	3.9	3.9	4.3	2.8	3.5	5.0	4.4	4.3	4.1
AC-FT	343	290	261	293	268	301	301	329	330	313	271	261

CAL YR 1977 TOTAL 1775.8 MEAN 4.87 MAX 6.8 MIN 2.9 AC-FT 3520
WTR YR 1978 TOTAL 1796.2 MEAN 4.92 MAX 6.5 MIN 2.8 AC-FT 3560

06429905 SAND CREEK NEAR RANCH A, NEAR BEULAH, WY

LOCATION.--Lat 44°31'13", long 104°05'00", in SE¼SW¼ sec.5, T.52 N., R.60 W., Crook County, Hydrologic Unit 10120203, on left bank 1.0 mi (1.6 km) upstream from Bear Gulch, and 1.6 mi (2.6 km) south of Beulah.

DRAINAGE AREA.--267 mi² (692 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,600 ft (1,100 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 96 ft³/s (2.72 m³/s) Apr. 29, 1978, gage height, 5.73 ft (1.746 m); minimum daily, 22 ft³/s (0.62 m³/s) Feb. 1 to Mar. 2, 1978.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 700 ft³/s (19.8 m³/s) June 15, 1976, gage height, 7.77 ft (2.368 m), from slope-area measurement of peak flow at site 3 mi (4.8 km) upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 96 ft³/s (2.72 m³/s) Apr. 29, gage height, 5.73 ft (1.746 m); minimum daily, 22 ft³/s (0.62 m³/s) Feb. 1 to Mar. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	28	26	24	22	22	26	47	39	34	31	29
2	28	28	26	23	22	22	27	39	39	33	30	29
3	29	28	26	23	22	23	26	34	39	31	30	28
4	27	29	26	23	22	23	26	38	38	31	30	29
5	27	28	25	23	22	24	26	36	38	31	28	29
6	27	28	25	23	22	26	26	34	39	31	28	29
7	29	29	25	23	22	25	26	37	39	31	28	29
8	28	29	25	23	22	26	26	37	39	31	28	29
9	28	29	25	23	22	26	27	38	38	31	28	29
10	28	28	25	23	22	26	27	42	38	29	28	28
11	28	28	25	23	22	26	28	66	37	30	28	28
12	28	29	25	23	22	26	28	65	36	30	28	28
13	28	28	25	23	22	26	28	58	37	31	28	28
14	28	28	26	23	22	28	28	54	37	32	28	28
15	28	29	26	23	22	28	27	55	37	32	29	28
16	29	29	26	23	22	30	28	50	36	32	28	28
17	29	29	26	23	22	29	28	48	36	32	28	28
18	29	29	25	23	22	29	29	48	36	31	28	28
19	30	29	25	23	22	29	29	48	36	31	28	28
20	30	29	25	23	22	30	29	49	34	31	28	28
21	30	29	24	23	22	30	29	48	35	33	28	28
22	30	28	24	23	22	30	29	45	35	32	28	28
23	30	29	24	23	22	31	29	43	35	31	28	28
24	30	28	24	23	22	31	30	41	35	31	28	28
25	29	28	24	23	22	31	30	39	34	31	28	28
26	28	27	24	23	22	30	31	39	34	31	28	28
27	28	27	24	23	22	28	32	39	34	30	28	28
28	28	26	24	23	22	25	32	38	33	30	29	28
29	28	26	24	23	---	25	73	39	33	31	29	28
30	28	26	24	23	---	26	65	40	34	31	29	28
31	28	---	24	23	---	26	---	39	---	30	29	---
TOTAL	885	845	772	714	616	837	925	1373	1090	966	882	848
MEAN	28.5	28.2	24.9	23.0	22.0	27.0	30.8	44.3	36.3	31.2	28.5	28.3
MAX	30	29	26	24	22	31	73	66	39	34	31	29
MIN	27	26	24	23	22	22	26	34	33	29	28	28
AC-FT	1760	1680	1530	1420	1220	1660	1830	2720	2160	1920	1750	1680

CAL YR 1977 TOTAL 10416 MEAN 28.5 MAX 43 MIN 24 AC-FT 20660
WTR YR 1978 TOTAL 10753 MEAN 29.5 MAX 73 MIN 22 AC-FT 21330

06430000 MURRAY DITCH AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'35", long 104°02'58", in SW¼SW¼ sec.7, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on right bank 15 ft (5 m) downstream from State line and 12 mi (19 km) southwest of Belle Fourche, SD.

PERIOD OF RECORD.--June 1954 to current year (irrigation seasons only prior to October 1959).

GAGE.--Water-stage recorder. Altitude of gage is 3,440 ft (1,050 m), from topographic map.

REMARKS.--Records fair. Ditch diverts water from left bank of Redwater Creek, 2.0 mi (3.2 km) upstream, for irrigation of about 700 acres (283 hm²). Flow maintained during irrigation season only. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 37 ft³/s (1.05 m³/s) July 17, 1973; no flow for long periods in each year.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	8.7	.00	.00	.00	.00	.00	.00	.00	8.8	4.3	11
2	6.9	9.1	.00	.00	.00	.00	.00	.00	.00	8.3	4.4	8.8
3	7.5	9.4	.00	.00	.00	.00	.00	.00	.00	8.5	4.5	9.5
4	8.1	10	.00	.00	.00	.00	.00	.24	.00	9.0	4.4	9.8
5	9.5	9.5	.00	.00	.00	.00	.00	.05	.00	9.5	4.2	9.5
6	10	9.7	.00	.00	.00	.00	.00	.00	.00	10	4.1	9.1
7	11	9.1	.00	.00	.00	.00	.00	.42	.00	11	3.9	11
8	11	.74	.00	.00	.00	.00	.00	.66	.00	11	4.9	11
9	12	.00	.00	.00	.00	.00	.00	.05	.00	12	5.8	10
10	14	.00	.00	.00	.00	.00	.00	.00	.00	12	8.1	10
11	17	.00	.00	.00	.00	.00	.00	.00	.00	12	8.4	11
12	18	.00	.00	.00	.00	.00	.00	.00	.00	13	6.9	11
13	19	.00	.00	.00	.00	.00	.00	.00	.00	13	6.2	11
14	13	.00	.00	.00	.00	.00	.00	.00	.00	13	6.3	12
15	10	.00	.00	.00	.00	.00	.00	.00	.00	12	5.7	12
16	11	.00	.00	.00	.00	.00	.00	.00	3.7	13	6.0	12
17	13	.00	.00	.00	.00	.00	.00	.00	5.5	13	5.2	11
18	15	.00	.00	.00	.00	.00	.00	.00	5.8	9.7	4.7	10
19	15	.00	.00	.00	.00	.00	.00	.00	6.3	9.7	8.1	13
20	15	.00	.00	.00	.00	.00	.00	.00	6.6	10	12	14
21	17	.00	.00	.00	.00	.00	.00	.00	6.7	10	12	15
22	19	.00	.00	.00	.00	.00	.00	.00	6.7	11	12	16
23	21	.00	.00	.00	.00	.00	.00	.00	5.7	11	11	15
24	22	.00	.00	.00	.00	.00	.00	.00	5.7	12	11	15
25	21	.00	.00	.00	.00	.00	.00	.00	5.8	12	11	16
26	13	.00	.00	.00	.00	.00	.00	.00	5.8	8.9	13	17
27	7.4	.00	.00	.00	.00	.00	.00	.00	5.8	7.5	15	19
28	7.2	.00	.00	.00	.00	.00	.00	.00	5.7	7.8	14	15
29	6.4	.00	.00	.00	---	.00	.00	.00	6.6	6.7	13	8.4
30	7.0	.00	.00	.00	---	.00	.00	.00	7.8	4.0	13	8.3
31	8.7	---	.00	.00	---	.00	---	.00	---	4.1	13	---
TOTAL	392.6	66.24	.00	.00	.00	.00	.00	1.42	90.20	313.5	256.1	361.4
MEAN	12.7	2.21	.000	.000	.000	.000	.000	.046	3.01	10.1	8.26	12.0
MAX	22	10	.00	.00	.00	.00	.00	.66	7.8	13	15	19
MIN	6.4	.00	.00	.00	.00	.00	.00	.00	.00	4.0	3.9	8.3
AC-FT	779	131	.00	.00	.00	.00	.00	2.8	179	622	508	717

CAL YR 1977 TOTAL 1873.08 MEAN 5.13 MAX 34 MIN .00 AC-FT 3720
WTR YR 1978 TOTAL 1481.46 MEAN 4.06 MAX 22 MIN .00 AC-FT 2940

06430500 REDWATER CREEK AT WYOMING-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 44°34'26", long 104°02'54", in NW¼NW¼ sec.18, T.7 N., R.1 E., Butte County, Hydrologic Unit 10120203, on left bank 800 ft (244 m) downstream from State line, 5.7 mi (9.2 km) upstream from Crow Creek, and 12 mi (19 km) southwest of Belle Fourche, SD.

DRAINAGE AREA.--471 mi^2 (1,220 km^2).

PERIOD OF RECORD.--April 1929 to September 1931 and February 1936 to July 1937 (published as "near Beulah, WY"), June 1954 to current year.

REVISED RECORDS.--WSP 1309: 1931(M), 1936-37(M).

GAGE.--Water-stage recorder. Altitude of gage is 3,410 ft (1,040 m), from topographic map. Apr. 25, 1929, to Sept. 30, 1931, and Feb. 28, 1936, to July 31, 1937, nonrecording gage at site 2 mi (3 km) upstream at different datum.

REMARKS.--Records good. Large diversions for irrigation above station. Total flow passing State line may be obtained by adding flow of Murray ditch (see station 06430000). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--26 years, 37.0 ft^3/s (1.048 m^3/s), 26,810 acre-ft/yr (33.1 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximun discharge, 2,440 ft^3/s (69.1 m^3/s) Aug. 22, 1973, gage height, 12.19 ft (3.716 m), from rating curve extended above 1,000 ft^3/s (27 m^3/s) on basis of slope-area measurement at gage height 11.95 ft (3.462 m); no flow Aug. 13-15, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 19	0300	260	7.36	4.14	1.262	May 11	1115	*360	10.2	*4.80	1.463
Apr. 29	1745	186	5.27	3.72	1.134	May 20	0230	188	5.32	3.80	1.158

Minimum daily discharge, 23 ft^3/s (0.65 m^3/s) July 15, Aug. 28-30.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	31	41	37	38	37	47	87	62	45	40	26
2	30	30	42	39	39	37	47	60	62	40	40	26
3	30	30	42	42	38	37	46	53	61	39	39	31
4	31	30	42	36	37	37	46	64	57	39	41	29
5	31	30	41	36	37	37	43	62	55	38	40	29
6	31	30	40	37	38	36	41	76	54	35	40	28
7	35	31	38	36	38	37	40	84	55	30	39	28
8	33	41	36	35	38	38	41	89	54	30	38	28
9	33	40	34	35	38	55	40	84	55	30	34	30
10	34	40	36	35	37	96	39	115	56	29	32	27
11	34	40	37	36	38	91	40	264	55	25	32	24
12	34	40	37	36	38	84	39	220	52	25	32	25
13	33	40	36	36	37	60	40	170	53	28	33	25
14	33	40	37	36	37	50	39	137	54	28	39	31
15	32	40	37	36	37	48	38	120	54	23	44	31
16	33	40	38	35	37	48	37	101	50	24	39	30
17	33	41	37	36	37	86	37	91	49	26	36	31
18	32	41	37	36	37	140	40	98	49	28	34	34
19	32	40	37	36	38	146	38	149	49	28	29	30
20	32	37	36	35	38	75	37	163	48	29	28	30
21	33	36	36	36	38	56	40	127	48	35	27	30
22	33	40	37	37	37	53	43	105	49	35	28	29
23	32	40	37	37	38	53	41	87	48	35	28	29
24	32	39	36	37	38	52	42	76	49	39	27	29
25	32	39	36	37	37	50	41	69	50	39	27	28
26	33	41	36	36	37	48	37	65	48	43	29	28
27	33	41	36	36	38	48	37	63	48	45	27	29
28	35	41	36	37	37	48	40	65	46	44	23	28
29	34	41	36	37	---	48	118	62	42	43	23	28
30	33	41	35	37	---	47	135	64	43	47	23	28
31	31	---	35	37	---	47	---	62	---	41	25	---
TOTAL	1012	1131	1157	1130	1052	1825	1389	3132	1555	1065	1016	859
MEAN	32.6	37.7	37.3	36.5	37.6	58.9	46.3	101	51.8	34.4	32.8	28.6
MAX	35	41	42	42	39	146	135	264	62	47	44	34
MIN	30	30	34	35	37	36	37	53	42	23	23	24
AC-FT	2010	2240	2290	2240	2090	3620	2760	6210	3080	2110	2020	1700

CAL YR 1977 TOTAL 13531.0 MEAN 37.1 MAX 79 MIN 9.6 AC-FT 26840
WTR YR 1978 TOTAL 16323.0 MEAN 44.7 MAX 264 MIN 23 AC-FT 32380

06431500 SPEARFISH CREEK AT SPEARFISH, SD

LOCATION.--Lat 44°28'57", long 103°51'40", in SE¼NW¼ sec.15, T.6 N., R.2 E., Lawrence County, Hydrologic Unit 10120203, on right bank in city park in Spearfish, 500 ft (152 m) downstream from fish hatchery and nearest tributary, and 9.8 mi (15.8 km) upstream from mouth.

DRAINAGE AREA.--168 mi^2 (435 km^2).

PERIOD OF RECORD.--October 1946 to current year.

REVISED RECORDS.--WSP 1116: Drainage area.

GAGE.--Water-stage recorder. Altitude of gage is 3,640 ft (1,110 m), from topographic map. Prior to Dec. 5, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Regulation by fish hatchery and by hydroelectric plant 0.5 mi (0.8 km) upstream causes diurnal fluctuation, but since storage capacity is small, daily flows are not appreciably affected. Prior to water year 1962 average monthly diversion by Homestake Mining Co. about 7 ft^3/s (0.20 m^3/s). Figures of daily discharge do not include diversion by Homestake Mining Co. Several observations of water temperature and specific conductance were made during the year.

COOPERATION.--Figures of monthly diversion are furnished by Homestake Mining Co.

AVERAGE DISCHARGE.--32 years, 51.7 ft^3/s (1.464 m^3/s), 37,460 acre-ft/yr (46.2 hm^3/yr), unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,240 ft^3/s (120 m^3/s) May 15, 1965, gage height, 10.53 ft (3.210 m), from rating curve extended above 520 ft^3/s (14.7 m^3/s) on basis of slope-area measurement of peak flow; maximum gage height, 10.54 ft (3.213 m) June 15, 1976; no flow for part of Oct. 18, 1970.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 5, 1904, reached a stage of 7.00 ft (2.134 m), site and datum of former gage near Spearfish, 1 mi (2 km) upstream, drainage area, 157 mi^2 (407 km^2); discharge about 5,000 ft^3/s (142 m^3/s).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 230 ft^3/s (6.51 m^3/s) May 11, gage height, 5.92 ft (1.804 m); minimum daily, 41 ft^3/s (1.16 m^3/s) Dec. 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	66	50	54	44	50	50	60	155	88	67	60	54
2	63	52	55	45	50	49	61	137	86	64	58	54
3	58	50	54	46	55	49	64	116	82	63	58	53
4	57	50	57	45	65	49	61	123	81	63	58	52
5	58	49	53	45	60	49	61	122	79	63	58	51
6	57	54	54	50	60	50	61	117	78	70	55	51
7	59	54	58	45	60	50	59	121	75	69	54	52
8	57	55	57	45	60	52	61	114	73	70	54	52
9	56	52	57	45	60	54	64	110	72	68	56	52
10	55	51	55	45	60	56	61	141	71	67	55	52
11	52	52	56	45	60	62	60	219	75	64	57	52
12	49	50	57	45	60	70	61	215	73	65	55	52
13	47	50	54	50	60	64	59	189	71	63	54	51
14	48	54	54	55	55	56	57	179	70	62	56	52
15	51	55	54	50	55	50	60	170	66	63	59	51
16	53	53	53	45	55	48	60	170	69	63	55	51
17	52	53	52	45	55	52	61	160	75	62	53	51
18	52	53	52	45	55	58	60	170	72	60	52	54
19	50	53	53	45	55	60	63	170	69	58	52	53
20	49	47	46	45	55	52	64	160	67	58	54	53
21	50	48	43	45	60	48	67	175	65	69	52	52
22	52	56	50	45	65	49	70	170	65	69	52	53
23	53	57	50	50	65	48	68	165	66	61	51	53
24	53	58	48	50	65	46	69	160	65	60	50	53
25	52	58	41	50	60	48	75	145	65	57	51	53
26	50	58	48	45	55	49	76	125	61	57	51	53
27	50	57	50	45	49	51	96	110	63	57	55	52
28	49	57	49	45	49	54	98	100	61	56	58	54
29	50	55	49	45	---	56	160	95	62	57	53	55
30	50	54	49	50	---	58	187	91	64	60	55	56
31	52	---	46	50	---	60	---	89	---	57	55	---
TOTAL	1650	1595	1608	1445	1613	1647	2184	4483	2129	1942	1696	1577
MEAN	53.2	53.2	51.9	46.6	57.6	53.1	72.8	145	71.0	62.6	54.7	52.6
MAX	66	58	58	55	65	70	187	219	88	70	60	56
MIN	47	47	41	44	49	46	57	89	61	56	50	51
AC-FT	3270	3160	3190	2870	3200	3270	4330	8890	4220	3850	3360	3130
MEAN‡	63.4	62.6	60.6	55.5	66.5	61.8	80.7	153	80.9	73.1	65.6	62.4
(†)	627	562	537	548	496	538	471	504	589	646	670	584
AC-FT‡	3900	3720	3730	3420	3700	3810	4800	9390	4810	4500	4030	3710

CAL YR 1977 TOTAL 21536 MEAN 59.0 MAX 162 MIN 34 AC-FT 42720
WTR YR 1978 TOTAL 23569 MEAN 64.6 MAX 219 MIN 41 AC-FT 46750

† Diversion, in acre-ft, by Homestake Mining Company
‡ Adjusted for diversion

06433000 REDWATER RIVER ABOVE BELLE FOURCHE, SD

LOCATION.--Lat 44°40'02", long 103°50'20", in NW¼SE¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at upstream side of bridge on U.S. Highway 212 in Belle Fourche, 0.5 mi (0.8 km) upstream from Hay Creek and 0.9 mi (1.4 km) upstream from mouth.

DRAINAGE AREA.--920 mi² (2,383 km²).

PERIOD OF RECORD.--November 1945 to current year. Records for water year 1946 incomplete, yearly discharge published in WSP 1309. Prior to October 1960, published as Redwater Creek above Belle Fourche.

REVISED RECORDS.--WSP 1389: 1954 (maximum gage height only).

GAGE.--Water-stage recorder. Altitude of gage is 3,000 ft (910 m), from topographic map. Prior to Dec. 13, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Diversions for irrigation of about 13,000 acres (5,260 hm²) above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 136 ft³/s (3.852 m³/s), 98,530 acre-ft/yr (121 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,400 ft³/s (464 m³/s) June 16, 1962, gage height, 11.69 ft (3.563 m), from rating curve extended above 6,000 ft³/s (170 m³/s) on basis of slope-area measurement of peak flow; no flow for part of Aug. 5, 1960, Aug. 8-10, 1968, and Aug. 13, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 4	1345	ice jam		*6.64	2.024
Mar. 18	2015	*1090	30.9	5.07	1.545
Apr. 30	0345	882	25.0	4.76	1.451
May 9	0130	912	25.8	4.75	1.448
May 12	0145	888	25.1	4.72	1.439
May 19	0145	522	14.8	4.03	1.228

Minimum daily discharge, 11 ft³/s (0.31 m³/s) Aug. 13.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	217	178	172	120	125	140	195	503	268	98	83	59
2	214	175	169	125	130	150	181	401	265	109	79	57
3	187	169	169	130	135	140	189	345	252	98	87	59
4	178	166	165	125	145	140	195	436	245	91	77	77
5	169	166	160	130	140	150	195	462	232	79	67	83
6	169	158	140	135	140	150	195	445	229	73	67	82
7	190	155	150	130	140	160	192	494	223	94	71	76
8	196	160	140	125	140	160	192	679	220	91	57	78
9	181	160	130	125	140	189	198	635	217	94	51	80
10	187	158	140	120	140	282	195	481	210	87	40	74
11	175	158	150	125	140	405	192	720	214	79	25	83
12	178	158	160	130	140	423	201	828	210	64	16	90
13	181	155	160	130	140	314	195	710	192	50	11	92
14	178	158	160	130	135	252	192	606	164	31	16	90
15	178	163	160	130	130	229	192	535	167	29	26	98
16	178	169	160	120	130	217	189	472	167	33	28	100
17	181	169	150	120	130	239	184	427	172	42	23	108
18	178	169	150	120	135	563	198	458	172	32	16	115
19	166	170	150	120	140	418	245	503	158	28	16	116
20	172	160	140	120	140	268	217	503	148	43	13	109
21	181	140	150	125	150	236	207	453	140	96	14	113
22	193	150	150	125	155	214	207	401	135	135	17	127
23	199	150	150	130	155	198	204	368	133	118	27	122
24	199	160	140	130	150	198	207	337	128	109	27	125
25	187	150	130	125	145	198	214	307	125	98	25	139
26	187	160	130	120	145	195	214	296	118	94	25	143
27	181	170	130	120	145	198	232	293	102	98	39	146
28	181	178	140	125	140	192	255	289	107	91	56	146
29	175	175	140	130	---	192	449	282	96	79	52	161
30	172	175	130	130	---	195	720	286	91	87	55	164
31	175	---	120	125	---	195	---	282	---	91	61	---
TOTAL	5683	4882	4585	3895	3920	7200	6841	14237	5300	2441	1267	3112
MEAN	183	163	148	126	140	232	228	459	177	78.7	40.9	104
MAX	217	178	172	135	155	563	720	828	268	135	87	164
MIN	166	140	120	120	125	140	181	282	91	28	11	57
AC-FT	11270	9680	9090	7730	7780	14280	13570	28240	10510	4840	2510	6170

CAL YR 1977 TOTAL 51719.4 MEAN 142 MAX 351 MIN 1.1 AC-FT 102600
WTR YR 1978 TOTAL 63363.0 MEAN 174 MAX 828 MIN 11 AC-FT 125700

06433500 HAY CREEK AT BELLE FOURCHE, SD

LOCATION.--Lat 44°40'01", long 103°50'46", in NW¼SW¼ sec.11, T.8 N., R.2 E., Butte County, Hydrologic Unit 10120203, on right bank at intersection of Tenth Avenue and Jackson Street in Belle Fourche, 0.5 mi (0.8 km) upstream from mouth.

DRAINAGE AREA.--121 mi² (313 km²).

PERIOD OF RECORD.--October 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,005.18 ft (915.979 m) National Geodetic Vertical Datum of 1929 (City of Belle Fourche bench mark). Prior to Dec. 8, 1953, nonrecording gage at site 300 ft (91 m) downstream at same datum.

REMARKS.--Records fair. Minor diversion to the stream at times from city reservoir overflow, which enters stream above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 1.50 ft³/s (0.042 m³/s), 1,090 acre-ft/yr (1.34 hm³/yr); median of yearly mean discharges, 1.0 ft³/s (0.03 m³/s), 720 acre-ft/yr (0.89 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 930 ft³/s (26.3 m³/s) June 19, 1972, gage height, 9.15 ft (2.789 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 12	1200	*243	6.88	a*6.97	2.124
Mar. 19	1400	159	4.50	6.35	1.935
May 8	1200	94	2.66	5.70	1.737

a Ice jam.
No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.0	.11	.20	.00	.00	.00	1.5	12	6.3	1.9	.00	.00
2	2.4	.04	.10	.02	.00	.00	5.9	6.3	6.5	2.8	.07	.00
3	1.2	.04	.05	.05	.00	.00	6.5	4.1	5.7	1.2	.02	.00
4	.25	.04	.02	.05	.05	.00	2.5	18	5.1	.70	.02	.00
5	.07	.04	.00	.05	.00	.00	1.5	34	4.3	.60	.00	.00
6	.04	.03	.00	.05	.00	.00	1.1	32	3.5	1.6	.00	.00
7	1.6	.00	.00	.05	.00	.50	.85	40	3.0	1.3	.00	.00
8	4.1	.04	.00	.00	.00	10	.80	89	2.6	1.1	.00	.00
9	3.0	.00	.00	.00	.00	20	.98	76	2.4	1.3	.00	.00
10	2.1	.00	.00	.00	.00	40	.75	46	2.0	1.3	.00	.00
11	1.1	.00	.00	.00	.00	50	.85	32	1.8	.45	.00	.00
12	.60	.00	.00	.05	.00	120	.92	37	1.9	.21	.00	.00
13	.28	.00	.05	.02	.00	85	1.1	28	1.5	.04	.00	.00
14	.18	.02	.25	.00	.00	45	1.1	20	1.2	.00	.00	.00
15	.07	.14	.50	.00	.00	23	1.1	16	1.3	.00	.00	.00
16	.04	.11	.70	.00	.00	12	.98	12	1.4	.01	.00	.00
17	.04	.07	.30	.00	.00	13	1.1	11	1.6	.02	.00	.00
18	.04	.07	.20	.00	.00	45	3.7	16	1.4	.00	.00	.00
19	.04	.04	.10	.00	.02	123	3.0	20	1.5	.00	.00	.00
20	.01	.00	.05	.00	.10	56	1.5	22	1.3	1.8	.00	.00
21	.18	.00	.05	.00	.80	30	1.5	22	.85	3.9	.00	.00
22	.21	.00	.20	.00	3.0	16	1.6	18	.92	2.4	.00	.00
23	.18	.00	.20	.00	6.0	7.5	1.3	14	.70	1.1	.00	.00
24	.32	.00	.15	.00	10	4.3	1.1	11	.55	.45	.00	.00
25	.14	.02	.15	.00	4.0	3.6	.98	9.3	.83	.65	.00	.00
26	.07	.03	.10	.00	2.5	3.0	.92	8.6	.65	.28	.00	.00
27	.04	.07	.05	.00	1.0	2.8	.92	7.5	1.1	.06	.00	.00
28	.04	.30	.10	.00	.05	2.5	1.4	6.9	3.7	.00	.00	.00
29	.04	.40	.07	.00	---	1.8	7.3	7.0	3.4	.11	.00	.00
30	.04	.30	.07	.00	---	1.6	15	6.7	2.6	.72	.00	.00
31	.14	---	.05	.00	---	1.5	---	5.3	---	.04	.00	---
TOTAL	20.56	1.91	3.71	.34	27.52	717.10	69.75	687.7	71.60	26.04	.11	.00
MEAN	.66	.064	.12	.011	.98	23.1	2.33	22.2	2.39	.84	.004	.000
MAX	4.1	.40	.70	.05	10	123	15	89	6.5	3.9	.07	.00
MIN	.01	.00	.00	.00	.00	.00	.75	4.1	.55	.00	.00	.00
AC-FT	41	3.8	7.4	.7	55	1420	138	1360	142	52	.2	.00

CAL YR 1977 TOTAL 128.94 MEAN .35 MAX 17 MIN .00 AC-FT 256
WTR YR 1978 TOTAL 1626.34 MEAN 4.46 MAX 123 MIN .00 AC-FT 3230

06434500 INLET CANAL NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°42'14", long 103°49'23", in NE¼NW¼ sec.36, T.9 N., R.2 E., Butte County, Hydrologic Unit 10120202, on right bank 0.5 mi (0.8 km) downstream from Crow Creek, 0.9 mi (1.4 km) downstream from diversion dam on Belle Fourche River, and 2.5 mi (4.0 km) northeast of Belle Fourche.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly diversions from Inlet Canal between station and reservoir for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,985.22 ft (909.895 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 10, 1946, nonrecording gage, and Dec. 10, 1946, to Nov. 26, 1949, water-stage recorder at site 0.8 mi (1.3 km) upstream at same datum.

REMARKS.--Records good except those for winter periods, which are poor. Records show actual diversions to Belle Fourche Reservoir (see station 06435000), from Belle Fourche River and Crow Creek, except for 2,725 acre-ft (3.36 hm³) which was diverted for irrigation from the canal between the station and reservoir.

COOPERATION.--Records of diversion from the canal furnished by Bureau of Reclamation.

AVERAGE DISCHARGE.--33 years, 163 ft³/s (4.616 m³/s), 118,100 acre-ft/yr (146 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 1,340 ft³/s (37.9 m³/s) May 30, 1962, Mar. 21, 1978; no flow for many days in 1946-49, 1963, 1966, 1971-76, 1978.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	311	192	155	150	165	130	819	857	.00	217	193	160
2	560	185	159	150	165	130	706	681	.00	237	181	152
3	433	186	164	150	175	130	618	296	.00	259	193	154
4	285	189	169	150	190	140	532	55	.00	324	187	166
5	294	192	169	155	180	150	476	163	.00	256	183	164
6	263	194	170	160	180	170	435	56	.00	227	184	150
7	326	197	170	155	180	190	403	50	.00	227	180	119
8	509	200	160	155	180	210	377	49	.00	208	137	128
9	373	204	160	155	180	230	367	25	157	209	136	150
10	293	194	160	150	180	330	343	.00	322	195	133	129
11	270	195	170	155	180	475	322	.00	312	176	127	137
12	250	198	180	160	180	550	323	.00	366	172	113	153
13	248	195	180	160	180	600	311	.00	496	149	97	148
14	242	192	190	160	170	750	303	.00	458	120	134	154
15	232	188	190	160	150	569	295	.00	347	108	144	165
16	231	183	190	155	140	523	291	.00	419	117	137	166
17	229	175	190	160	130	551	283	.00	433	135	125	181
18	219	181	180	155	135	994	315	.00	409	111	116	188
19	204	174	180	150	140	1160	385	.00	381	96	154	168
20	201	165	170	155	150	1310	351	.00	350	121	143	165
21	201	160	170	160	160	1340	328	.00	330	274	143	159
22	204	170	170	170	170	1300	318	.00	322	432	138	150
23	203	170	170	175	170	1210	305	.00	314	310	142	146
24	202	180	160	175	170	1170	301	.00	298	246	138	145
25	202	175	160	170	160	1110	309	.00	286	268	132	149
26	198	180	160	165	150	1070	313	.00	267	241	132	162
27	195	175	160	165	140	944	340	.00	235	232	129	162
28	193	180	170	170	130	1020	383	.00	248	211	153	162
29	190	180	170	170	---	1060	583	.00	236	189	132	169
30	189	174	160	170	---	1060	988	.00	235	203	142	186
31	191	---	160	165	---	913	---	.00	---	206	151	---
TOTAL	8141	5523	5266	4955	4580	21489	12423	2232.00	7221.00	6476	4529	4687
MEAN	263	184	170	160	164	693	414	72.0	241	209	146	156
MAX	560	204	190	175	190	1340	988	857	496	432	193	188
MIN	189	160	155	150	130	130	283	.00	.00	96	97	119
AC-FT	16150	10950	10450	9830	9080	42620	24640	4430	14320	12850	8980	9300

CAL YR 1977 TOTAL 84641.00 MEAN 232 MAX 1160 MIN 61 AC-FT 167900
WTR YR 1978 TOTAL 87522.00 MEAN 240 MAX 1340 MIN .00 AC-FT 173600

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to current year.
WATER TEMPERATURES: October 1968 to current year.

REMARKS.--No flow May 10 to June 8.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Feb. 13, 1969; minimum daily, 335 micromhos Feb. 12, 1971.
WATER TEMPERATURES: Maximum daily, 29.0°C July 1, 1971; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,650 micromhos Feb. 26; minimum daily, 550 micromhos May 6, 8.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 11; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT										
05...	0900	304	1180	8.5	8.0	470	360	130	36	43
NOV										
02...	1445	189	1500	8.3	9.0	680	500	190	51	23
29...	1300	181	1260	8.3	.5	690	500	210	41	22
JAN										
26...	1000	166	1460	8.0	.0	780	550	220	55	23
MAR										
01...	1200	126	1650	7.8	.0	730	500	210	50	20
13...	1500	964	745	7.9	2.5	270	200	77	20	36
20...	1115	1340	685	7.9	2.5	230	170	64	17	31
JUL										
12...	1700	168	1530	7.9	26.0	750	580	200	60	53
AUG										
08...	1715	130	1430	7.9	27.0	620	470	170	48	59
SEP										
08...	0815	114	1500	7.7	19.5	720	550	200	53	57

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT									
05...	16	.9	4.1	140	0	110	500	4.4	.4
NOV									
02...	7	.4	3.6	230	0	190	510	4.7	.4
29...	6	.4	3.5	230	0	190	500	6.0	.3
JAN									
26...	6	.4	3.4	280	0	230	580	3.8	.4
MAR									
01...	6	.3	3.2	280	0	230	500	5.9	.4
13...	22	.9	8.5	94	0	77	270	4.4	.3
20...	22	.9	5.3	73	0	60	190	2.7	.3
JUL									
12...	13	.8	6.6	200	0	160	640	5.1	.5
AUG									
08...	17	1.0	6.7	190	0	160	570	6.2	.5
SEP									
08...	15	.9	5.8	210	0	170	620	6.1	.5

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT									
05...	9.6	798	1.09	655	.29	.20	.02	.01	130
NOV									
02...	9.3	906	1.23	462	.15	.02	.01	.01	90
29...	10	908	1.23	444	.30	.06	.07	.01	90
JAN									
26...	11	1040	1.41	466	.43	.04	.02	--	90
MAR									
01...	11	940	1.28	320	.34	.14	.11	.09	90
13...	6.7	473	.64	1230	.68	.48	.14	.09	110
20...	5.6	354	.48	1280	.43	1.2	.11	.00	100
JUL									
12...	11	1080	1.47	490	.03	.09	.01	.01	190
AUG									
08...	9.3	964	1.31	338	.01	.06	.02	.03	160
SEP									
08...	9.1	1060	1.44	326	.08	.04	.00	.01	150

06434500 INLET CANAL NEAR BELLE FOURCHE, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	970	1220	1300	1380	1360	1300	900	990	---	1620	1360	1360
2	970	1220	1280	1380	1920	1310	905	945	---	1600	1360	1340
3	840	1220	1340	1680	1250	1350	925	925	---	1550	1340	1350
4	960	1260	1350	1680	1280	1340	1090	750	---	1550	1360	1360
5	1040	1250	1250	1700	1320	1370	1060	590	---	1520	1360	1310
6	1040	1260	1460	1420	1360	1980	1120	550	---	1500	1330	1370
7	1050	1240	1360	1290	1240	1560	1140	560	---	1500	1280	1360
8	910	1260	1290	1270	1320	1540	1180	550	---	1450	1380	1400
9	860	1300	1380	1670	1350	1560	1190	600	1000	1490	1360	1410
10	900	1220	1300	1410	1360	1180	1290	---	1050	1500	1480	1380
11	970	1250	1450	1420	1370	940	1290	---	1090	1580	1380	1400
12	1000	1300	1380	1300	1340	760	1280	---	1100	1700	1400	1370
13	1040	1320	1190	1410	1360	920	1290	---	1180	1700	1520	1360
14	1020	1280	1300	1670	1380	910	1310	---	1260	1600	1520	1420
15	1020	1250	1220	1410	1360	920	1320	---	1200	1770	1460	1390
16	1030	1240	1320	1290	1350	980	1240	---	1340	1700	1400	1360
17	1020	1220	1300	1400	1360	1040	1260	---	1270	1680	1380	1360
18	1010	1260	1300	1410	1270	910	1320	---	1450	1700	1460	1360
19	1020	1160	1320	1270	1220	680	1330	---	1440	1780	1420	1350
20	1000	1300	1240	1300	1350	585	1360	---	1350	1000	1400	1320
21	1020	1500	1310	1410	1900	620	1380	---	1340	1150	1400	1330
22	1040	1240	1310	1390	2000	830	1360	---	1350	1250	1380	1320
23	1040	940	1350	1280	2100	820	1330	---	1370	1300	1360	1340
24	1030	1270	1350	1350	2200	825	1320	---	1370	1420	1360	1360
25	1040	1210	1380	1400	2400	865	1330	---	1390	1590	1350	1340
26	1020	1230	1360	1420	2650	780	1310	---	1400	1570	1380	1340
27	1030	1210	1320	1420	1890	915	1100	---	1410	1570	1360	1340
28	1030	1210	1270	1420	1500	930	1160	---	1420	1480	1320	1370
29	1040	1220	1270	1280	---	770	1110	---	1420	1530	1350	1340
30	1040	1270	1330	1750	---	770	925	---	1500	1460	1360	1290
31	1040	---	1270	1900	---	850	---	---	---	1440	1360	---
MEAN	1000	1240	1320	1440	1560	1040	1200	718	1300	1520	1380	1360

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.0	9.0	4.0	.0	.0	.0	9.0	11.0	---	23.0	22.0	19.0
2	9.0	8.0	2.0	.0	.0	.0	8.0	13.0	---	---	20.0	19.0
3	11.0	9.0	2.0	.0	.0	.0	9.0	12.0	---	---	17.0	21.0
4	12.0	10.0	.0	.0	.0	.0	12.0	---	---	25.0	24.0	20.0
5	9.0	7.0	.0	.0	.0	.0	11.0	9.0	---	---	21.0	23.0
6	8.0	7.0	.0	.0	.0	.0	14.0	---	---	23.0	25.0	25.0
7	10.0	9.0	.0	.0	.0	.0	11.0	---	---	24.0	25.0	26.0
8	11.0	5.0	.0	.0	.0	1.0	9.0	---	---	23.0	24.0	22.0
9	9.0	4.0	.0	.0	.0	3.0	9.0	---	22.0	21.0	22.0	19.0
10	6.0	5.0	.0	.0	.0	2.0	10.0	---	20.0	20.0	26.0	19.0
11	4.0	2.0	.0	.0	.0	2.0	12.0	---	21.0	25.0	28.0	18.0
12	6.0	5.0	.0	.0	.0	4.0	11.0	---	19.0	26.0	23.0	17.0
13	11.0	3.0	1.0	.0	.0	3.0	10.0	---	20.0	25.0	27.0	18.0
14	10.0	7.0	1.0	.0	.0	2.0	13.0	---	24.0	27.0	22.0	14.0
15	7.0	4.0	2.0	.0	.0	4.0	9.0	---	21.0	23.0	20.0	15.0
16	7.0	5.0	2.0	.0	.0	5.0	9.0	---	21.0	---	20.0	15.0
17	9.0	2.0	1.0	.0	.0	5.0	8.0	---	19.0	24.0	19.0	---
18	10.0	4.0	2.0	.0	.0	5.0	8.0	---	20.0	---	18.0	13.0
19	12.0	1.0	1.0	.0	.0	4.0	7.0	---	19.0	20.0	17.0	10.0
20	13.0	.0	.0	.0	.0	3.0	9.0	---	22.0	---	---	9.0
21	12.0	.0	1.0	.0	.0	5.0	7.0	---	24.0	---	---	13.0
22	11.0	.0	.0	.0	---	6.0	8.0	---	21.0	18.0	20.0	13.0
23	9.0	.0	.0	---	---	3.0	8.0	---	26.0	---	20.0	11.0
24	11.0	6.0	.0	---	---	4.0	10.0	---	22.0	22.0	24.0	13.0
25	10.0	.0	.0	---	---	4.0	14.0	---	---	25.0	25.0	14.0
26	10.0	2.0	1.0	.0	.0	4.0	12.0	---	---	25.0	21.0	15.0
27	11.0	2.0	.0	---	.0	7.0	14.0	---	23.0	24.0	20.0	17.0
28	12.0	2.0	.0	.0	.0	10.0	11.0	---	23.0	25.0	19.0	15.0
29	8.0	3.0	.0	.0	---	9.0	9.0	---	25.0	22.0	20.0	14.0
30	10.0	4.0	.0	.0	---	9.0	9.0	---	---	24.0	19.0	11.0
31	11.0	---	.0	.0	---	11.0	---	---	---	26.0	18.0	---
MEAN	9.5	4.0	.5	.0	.0	3.5	10.0	11.5	21.5	23.5	21.5	16.5

06435000 BELLE FOURCHE RESERVOIR NEAR BELLE FOURCHE, SD

LOCATION.--Lat 44°44'12", long 103°40'27", in SW¼SE¼ sec.18, T.9 N., R.4 E., Butte County, Hydrologic Unit 10120202, at dam on Owl Creek, 9.8 mi (15.8 km) northeast of Belle Fourche.

PERIOD OF RECORD.--January 1912 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929, adjustment of 1912. Prior to June 6, 1967, nonrecording gage at present site and datum.

REMARKS.--Offstream reservoir formed by earthfill dam. Storage began in May 1910; dam completed in April 1911. Conservation capacity, 185,170 acre-ft (228 hm^3) 1949 survey, between elevations 2,927.0 ft (892.15 m), lowest outlet, and 2,975.0 ft (906.78 m), crest of spillway weir. Dead storage below elevation 2,927.0 ft (892.15 m) 6,800 acre-ft (8.38 hm^3). Figures given herein represent contents above elevation 2,927.0 ft (892.15 m). Water diverted from Belle Fourche River through Inlet Canal (see station 06434500) is stored in Belle Fourche Reservoir for irrigation.

COOPERATION.--Elevations and contents furnished by Bureau of Reclamation.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 197,400 acre-ft (243 hm^3) Apr. 30, 1919, May 20, 1920, elevation, 2,974.9 ft (906.75 m); minimum observed, -3,000 acre-ft (-3.70 hm^3) Sept. 30, 1936, water was lowered below dead storage level of 2,927.0 ft (892.15 m) by opening holes in crib walls.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 191,655 acre-ft (236 hm^3) May 12, elevation, 2,975.8 ft (907.02 m); minimum, 27,397 acre-ft (33.8 hm^3) Oct. 1, elevation, 2,945.1 ft (897.67 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	2945.10	27397	
Oct. 31	2952.70	50700	+23303
Nov. 30	2955.60	62884	+12184
Dec. 31	2958.10	73520	+10636
CAL YR 1977			+27370
Jan. 31	2960.20	85702	+12182
Feb. 28	2962.20	97140	+11438
Mar. 31	2971.70	159550	+62410
Apr. 30	2974.30	179521	+19971
May 31	2975.20	186786	+7265
June 30	2974.20	182749	-4037
July 31	2970.19	148380	-34369
Aug. 31	2963.70	105620	-42760
Sept. 30	2959.30	80114	-25506
WTR YR 1978			+52717

06436000 BELLE FOURCHE RIVER NEAR FRUITDALE, SD

LOCATION.--Lat 44°41'27", long 103°44'14", in NW¼NE¼ sec.3, T.8 N., R.3 E., Butte County, Hydrologic Unit 10120202, on right bank 5 ft (2 m) downstream from bridge on U.S. Highway 212, 2.5 mi (4.0 km) northwest of Fruitdale and 8.8 mi (14.2 km) downstream from point of diversion to Belle Fourche Reservoir.

DRAINAGE AREA.--4,540 mi^2 (11,760 km^2), approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Altitude of gage is 2,925 ft (892 m), from topographic map. Prior to Apr. 9, 1947, nonrecording gage and Apr. 10, 1947, to Oct. 14, 1948, water-stage recorder, at site 100 ft (30 m) upstream at same datum. Oct. 15, 1948, to Dec. 30, 1958, water-stage recorder and Dec. 31, 1958, to Sept. 23, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Keyhole Reservoir since Feb. 12, 1952, usable capacity, 191,600 acre-ft (236 hm^3), 180 mi (290 km) upstream. At a point 8.8 mi (14.2 km) above station, water is diverted to Belle Fourche Reservoir (see station 06435000) through Inlet Canal (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversions for irrigation of about 60,000 acres (243 km^2) above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 93.0 ft^3/s (2.634 m^3/s), 67,380 acre-ft/yr (83.1 hm^3/yr); median of yearly mean discharges, 63 ft^3/s (1.78 m^3/s), 45,600 acre-ft/yr (56 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft^3/s (346 m^3/s) June 15, 1976, gage height, 13.18 ft (4.017 m); no flow at times in 1945, 1948, 1959-62, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,780 ft^3/s (107 m^3/s) May 8, gage height, 9.03 ft (2.752 m); minimum daily, 2.9 ft^3/s (0.082 m^3/s) Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.9	4.7	5.2	3.5	3.7	3.3	7.9	12	1910	13	13	16
2	7.6	4.4	4.9	4.0	3.7	3.3	7.0	7.3	1880	13	13	15
3	4.2	4.2	4.9	4.0	4.0	3.3	6.6	172	1800	13	14	15
4	2.9	4.2	4.7	4.0	4.5	3.5	6.6	761	1740	12	14	15
5	3.5	4.2	4.7	4.0	4.0	3.5	6.0	1900	1670	12	14	14
6	3.7	4.2	4.7	4.0	3.8	3.5	5.8	2120	1630	11	14	14
7	7.0	3.9	4.5	3.8	3.7	4.0	5.8	1780	1580	12	16	15
8	7.9	4.2	4.0	3.5	3.6	4.5	5.5	3400	1550	12	15	15
9	6.3	4.2	3.0	3.5	3.5	5.0	5.5	2720	1420	13	13	15
10	6.0	4.2	3.5	3.3	3.5	6.0	5.5	1920	1190	14	14	15
11	5.8	4.2	3.5	3.3	3.5	150	4.9	2250	533	14	15	15
12	4.9	4.2	4.0	4.0	3.5	350	4.7	2920	265	12	18	16
13	4.7	4.2	4.0	3.5	3.5	300	4.7	2310	120	13	19	16
14	4.2	4.2	4.5	3.5	3.5	80	4.7	1640	18	13	21	15
15	4.4	3.9	4.5	3.5	3.5	30	4.7	1290	67	12	21	15
16	4.9	3.7	4.0	3.5	3.3	20	5.2	1110	17	11	21	13
17	4.9	3.7	4.0	3.5	3.0	15	4.9	980	13	13	21	12
18	6.3	4.0	4.0	3.5	3.3	100	5.8	985	13	13	19	14
19	7.0	4.0	4.0	3.5	3.5	931	8.3	1600	12	13	21	13
20	7.3	4.0	4.0	3.5	4.0	875	7.0	1840	11	18	19	13
21	7.3	4.0	4.5	4.0	4.5	741	6.0	2850	11	30	18	12
22	7.9	4.2	4.5	4.5	5.0	251	5.5	2170	12	22	16	11
23	7.3	4.5	4.0	4.5	4.5	45	4.9	1760	12	16	18	11
24	6.6	4.9	4.0	4.5	4.0	18	4.7	1750	11	14	18	11
25	6.3	4.9	4.0	4.0	3.7	24	4.7	1750	11	12	16	13
26	5.8	4.9	4.0	4.0	3.5	12	4.2	1830	10	10	16	12
27	5.5	5.5	4.0	4.0	3.5	13	3.9	1830	9.9	11	18	12
28	5.2	5.5	4.5	4.0	3.5	11	4.7	1870	10	12	21	13
29	4.9	5.2	4.0	3.7	---	10	7.6	1850	13	15	19	13
30	4.9	4.9	4.0	3.7	---	19	15	1870	15	16	19	13
31	4.7	---	4.0	3.7	---	8.7	---	1980	---	16	16	---
TOTAL	177.8	131.0	130.1	117.5	104.8	4043.6	178.3	53227.3	17553.9	431	530	412
MEAN	5.74	4.37	4.20	3.79	3.74	130	5.94	1717	585	13.9	17.1	13.7
MAX	7.9	5.5	5.2	4.5	5.0	931	15	3400	1910	30	21	16
MIN	2.9	3.7	3.0	3.3	3.0	3.3	3.9	7.3	9.9	10	13	11
AC-FT	353	260	258	233	208	8020	354	105600	34820	855	1050	817

CAL YR 1977 TOTAL 2107.45 MEAN 5.77 MAX 44 MIN .01 AC-FT 4180
WTR YR 1978 TOTAL 77037.30 MEAN 211 MAX 3400 MIN 2.9 AC-FT 152800

06436700 INDIAN CREEK NEAR ARPAN, SD

LOCATION.--Lat 44°48'51", long 103°41'22", in SE¼NE¼ sec.24, T.10 N., R.3 E., Butte County, Hydrologic Unit 10120202, on left bank 3,200 ft (975 m) upstream from North Canal flume, 3.5 mi (5.6 km) northwest of Arpan and 6.9 mi (11.1 km) downstream from Bitter Creek.

DRAINAGE AREA.--315 mi² (815 km²), approximately.

PERIOD OF RECORD.--August 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 2,900 ft (880 m), from topographic map.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--17 years, 22.5 ft³/s (0.637 m³/s), 16,300 acre-ft/yr (20.1 hm³/yr); median of yearly mean discharges, 16 ft³/s (0.45 m³/s), 11,600 acre-ft/yr (14 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,700 ft³/s (473 m³/s) June 15, 1976, gage height, 18.00 ft (5.486 m), from floodmarks, from rating curve extended above 3,000 ft³/s (85.0 m³/s) on basis of slope-area measurement of peak flow; no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 350 ft³/s (9.91 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 3	2100	381	10.8	9.28	2.829	May 8	unknown	*4410	12.5	*16.06	4.895
Oct. 9	0500	647	18.3	11.06	3.371	May 20	0430	500	14.2	9.87	3.008
Mar. 22	0800	2720	77.0	14.37	4.380	July 6	1530	2630	74.5	14.74	4.493
Mar. 26	1700	932	26.4	12.47	3.801	July 23	0900	518	14.7	10.01	3.051
May 5	0800	1640	46.4	13.72	4.182						

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	.05	.00	.00	.00	.00	118	19	31	34	13	.00
2	192	.02	.00	.00	.00	.00	76	20	22	6.2	8.7	.00
3	278	.01	.00	.00	.00	.00	46	19	24	4.0	9.9	.00
4	205	.00	.00	.00	.00	.00	34	86	17	2.0	6.8	.00
5	46	.00	.00	.00	.00	.00	27	1000	15	10	5.0	.00
6	22	.00	.00	.00	.00	.00	20	598	12	1360	3.0	.00
7	58	.00	.00	.00	.00	.02	14	600	7.5	1380	1.5	.00
8	239	.00	.00	.00	.00	.50	31	2450	9.2	247	.60	.00
9	565	.00	.00	.00	.00	1.0	56	800	2.5	61	.30	.00
10	173	.00	.00	.00	.00	2.5	50	369	1.4	40	.15	.00
11	46	.00	.00	.00	.00	5.0	41	149	1.2	32	.08	.00
12	27	.00	.00	.00	.00	6.5	32	65	1.1	21	.04	.00
13	20	.00	.00	.00	.00	8.0	27	56	.50	15	.02	.00
14	15	.00	.60	.00	.00	10	19	73	.30	11	.01	.00
15	6.8	.00	.50	.00	.00	20	16	48	.10	7.5	.00	.00
16	2.9	.00	.40	.00	.00	50	15	64	.02	5.5	.00	.00
17	.47	.00	.01	.00	.00	200	17	57	7.6	4.0	.00	.00
18	.99	.00	.00	.00	.00	700	18	67	44	19	.00	.00
19	1.2	.00	.00	.00	.00	1500	21	224	17	9.8	.00	.00
20	1.1	.00	.00	.00	.00	1590	23	413	17	13	.00	.00
21	.75	.00	.00	.00	.00	2120	23	245	13	92	.00	.00
22	.55	.00	.00	.00	.00	2100	33	81	11	350	.00	.00
23	.75	.00	.00	.00	.00	991	31	44	7.8	480	.00	.00
24	.65	.00	.00	.00	.00	637	26	35	9.9	284	.00	.00
25	.75	.00	.00	.00	.00	431	20	24	2.5	95	.00	.00
26	.55	.00	.00	.00	.00	782	16	19	1.5	38	.00	.00
27	.47	.00	.00	.00	.00	765	16	14	1.4	25	.00	.00
28	.35	.00	.00	.00	.00	634	16	11	.35	17	.00	.00
29	.30	.00	.00	.00	---	454	17	8.7	2.7	13	.00	.00
30	.20	.00	.00	.00	---	285	17	9.9	116	16	.00	.00
31	.15	---	.00	.00	---	174	---	18	---	40	.00	---
TOTAL	1968.93	.08	1.51	.00	.00	13466.52	916	7686.6	396.57	4732.0	49.10	.00
MEAN	63.5	.003	.049	.000	.000	434	30.5	248	13.2	153	1.58	.000
MAX	565	.05	.60	.00	.00	2120	118	2450	116	1380	13	.00
MIN	.15	.00	.00	.00	.00	.00	14	8.7	.02	2.0	.00	.00
AC-FT	3910	.2	3.0	.00	.00	26710	1820	15250	787	9390	97	.00

CAL YR 1977 TOTAL 5175.43 MEAN 14.2 MAX 854 MIN .00 AC-FT 10270
WTR YR 1978 TOTAL 29217.31 MEAN 80.0 MAX 2450 MIN .00 AC-FT 57950

06436800 HORSE CREEK NEAR VALE, SD

LOCATION.--Lat 44°39'30", long 103°20'17", in SE¼NW¼ sec.13, T.8 N., R.6 E., Butte County, Hydrologic Unit 10120202, on right bank 600 ft (183 m) downstream from Dry Creek, 2.9 mi (4.7 km) upstream from mouth and 4.0 mi (6.4 km) northeast of Vale.

DRAINAGE AREA.--530 mi^2 (1,370 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1962 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,688.96 ft (819.595 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are poor. Natural flow of stream affected by diversions for irrigation above station and by return flow from Belle Fourche Irrigation Project.

AVERAGE DISCHARGE.--16 years, 63.1 ft^3/s (1.787 m^3/s), 45,720 acre-ft/yr (56.4 hm^3/yr); median of yearly mean discharges, 52 ft^3/s (1.47 m^3/s), 37,700 acre-ft/yr (46 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,600 ft^3/s (329 m^3/s) June 16, 1976, gage height, 14.61 ft (4.453 m), from floodmarks, from rating curve extended above 2,000 ft^3/s (56.6 m^3/s) on basis of slope-area measurement of peak flow; minimum daily, 0.20 ft^3/s (0.006 m^3/s) May 7-9, 1962, Jan. 17, 18, 1970.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 400 ft^3/s (11.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Oct. 10	1600	496	14.0	6.39	1.948
Mar. 22	1600	*3540	100	*11.97	3.648
May 6	1530	1430	40.4	8.98	2.737
May 9	2200	1920	54.4	10.00	3.048
May 21	0900	572	16.2	6.80	2.073
July 8	1100	2000	56.6	10.15	3.094
July 24	1100	523	14.8	6.82	2.079

Minimum daily discharge, 3.0 ft^3/s (0.085 m^3/s) Dec 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	86	5.2	8.2	3.5	3.5	5.0	316	15	17	188	146	130
2	141	5.2	7.2	3.5	3.5	5.0	225	9.2	21	175	151	128
3	219	5.5	6.5	3.5	4.0	5.0	161	6.9	36	132	139	116
4	249	5.2	6.5	3.5	4.5	5.0	106	19	34	116	111	111
5	279	4.7	6.5	3.5	4.5	6.0	79	162	34	111	95	116
6	93	4.7	6.0	4.0	4.0	7.0	58	1020	27	128	84	120
7	181	4.7	5.0	4.0	4.0	8.0	42	813	23	636	78	124
8	80	4.4	4.0	3.5	4.0	9.0	31	846	20	1790	59	126
9	205	4.4	3.0	3.5	4.0	9.0	25	1540	18	527	59	117
10	439	4.2	3.5	3.5	4.0	10	16	1300	14	225	67	131
11	287	4.4	4.0	3.5	3.5	14	15	429	12	186	78	131
12	85	4.4	4.0	4.0	3.5	14	13	188	50	158	92	136
13	50	4.2	4.5	4.5	3.5	16	11	91	46	130	114	128
14	34	4.2	5.0	4.5	3.5	20	8.5	70	34	112	141	119
15	26	4.2	4.0	4.0	3.5	25	7.5	96	34	106	209	119
16	22	4.2	4.0	4.0	3.5	50	5.7	68	41	111	194	115
17	18	3.8	4.0	4.0	3.5	120	5.2	112	58	131	171	116
18	15	3.5	3.5	4.0	4.0	500	10	184	65	130	154	123
19	12	4.2	3.5	3.5	5.0	1200	20	387	96	128	150	112
20	10	5.5	3.5	3.5	4.5	2000	12	426	94	135	143	123
21	8.5	8.5	4.0	4.0	4.5	2800	11	534	75	194	132	96
22	10	8.0	4.0	4.5	5.0	3120	9.6	404	72	291	128	83
23	9.2	8.5	4.0	4.0	6.0	2710	8.5	259	64	440	131	81
24	7.8	11	4.0	4.0	6.0	1520	7.8	73	56	507	114	73
25	7.5	9.6	4.0	4.0	5.5	845	7.2	58	53	395	101	76
26	6.9	11	3.5	4.0	5.0	690	6.0	36	56	245	105	71
27	6.6	11	4.0	3.5	5.0	1020	4.4	28	57	158	121	80
28	5.7	9.2	4.0	3.5	5.0	976	4.4	23	66	138	139	80
29	5.5	8.5	4.0	3.5	---	777	16	24	65	159	136	76
30	5.7	9.2	4.0	3.5	---	565	21	18	79	136	128	78
31	5.5	---	4.0	3.5	---	411	---	16	---	115	128	---
TOTAL	2609.9	185.3	139.9	117.5	120.0	19462.0	1262.8	9255.1	1417	8133	3798	3235
MEAN	84.2	6.18	4.51	3.79	4.29	628	42.1	299	47.2	262	123	108
MAX	439	11	8.2	4.5	6.0	3120	316	1540	96	1790	209	136
MIN	5.5	3.5	3.0	3.5	3.5	5.0	4.4	6.9	12	106	59	71
AC-FT	5180	368	277	233	238	38600	2500	18360	2810	16130	7530	6420

CAL YR 1977 TOTAL 19681.1 MEAN 53.9 MAX 971 MIN 2.0 AC-FT 39040
WTR YR 1978 TOTAL 49735.5 MEAN 136 MAX 3120 MIN 3.0 AC-FT 98650

06436800 HORSE CREEK NEAR VALE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1968 to September 1969, October 1971 to current year.
WATER TEMPERATURES: October 1968 to September 1969, October 1971 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 8,080 micromhos Feb. 1-3, 1969; minimum daily, 550 micromhos June 19, 1976.
WATER TEMPERATURES: Maximum daily, 33.0°C June 29, 1974, July 28, 1978; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 7,700 micromhos Dec. 27; minimum daily, 530 micromhos Mar. 22, 23.
WATER TEMPERATURES: Maximum daily, 33.0°C July 28; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT										
12...	1700	75	1440	7.6	8.0	380	300	78	46	110
31...	1400	5.6	5000	8.3	9.5	2100	1800	300	320	630
DEC										
05...	1030	6.6	6000	8.5	.0	2600	2200	390	390	840
JAN										
05...	1330	3.6	7100	7.6	.5	2700	2300	400	410	900
FEB										
10...	1100	3.8	7000	7.8	.0	2700	2300	410	410	950
MAR										
28...	1300	915	580	7.8	11.0	180	120	43	18	56
MAY										
11...	1645	358	980	7.6	15.0	360	290	73	44	110
JUN										
06...	1030	27	2940	8.4	19.5	920	740	170	120	280
JUL										
10...	1345	216	1550	7.8	20.5	590	460	14[illegible]	58	100
AUG										
07...	1415	80	1900	8.1	25.0	710	560	17[illegible]	70	110
SEP										
06...	1015	117	1620	8.2	22.5	730	560	200	56	110

06436800 HORSE CREEK NEAR VALE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT									
12...	38	2.4	7.0	100	0	82	500	15	.2
31...	40	6.0	.9	370	0	300	2700	96	.5
DEC									
05...	41	7.2	12	520	0	430	3600	130	.4
JAN									
05...	42	7.6	14	530	0	430	3800	150	.3
FEB									
10...	43	7.9	14	550	0	450	3900	160	.2
MAR									
28...	39	1.8	4.9	69	0	57	220	9.3	.3
MAY									
11...	39	2.5	5.8	93	0	76	480	15	.3
JUN									
06...	40	4.0	8.7	220	1	180	1200	50	.4
JUL									
10...	27	1.8	8.8	160	0	130	590	19	.4
AUG									
07...	25	1.8	8.5	190	0	160	790	17	.5
SEP									
06...	24	1.8	8.5	210	0	170	790	13	.5

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT									
12...	6.6	815	1.11	165	.65	1.3	.01	.01	210
31...	4.4	4280	5.82	64.7	11	.05	.01	.01	870
DEC									
05...	7.0	5710	7.77	102	19	.03	.01	.00	1100
JAN									
05...	9.3	6030	8.20	58.6	20	.04	.02	.01	1100
FEB									
10...	1.4	6140	8.35	63.0	4.6	.06	.04	.01	1200
MAR									
28...	5.9	394	.54	973	.54	1.5	.02	.01	100
MAY									
11...	6.7	783	1.06	757	.54	.98	.01	.00	140
JUN									
06...	3.2	1950	2.65	142	.92	.08	.00	.02	460
JUL									
10...	8.3	1010	1.37	589	.44	.68	.02	.05	240
AUG									
07...	6.4	1270	1.73	274	1.2	.09	.00	.03	250
SEP									
06...	6.8	1290	1.75	408	.23	.05	.02	.01	270

06436800 HORSE CREEK NEAR VALE, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2750	3750	2900	6400	7000	6200	940	4200	2780	1690	1530	1730
2	2250	4800	4400	6500	7100	5900	880	3210	2780	1690	1540	1720
3	890	4000	5700	6500	7100	6200	1730	4100	2780	1700	1540	1730
4	720	3500	3760	6500	7100	6050	1700	5400	2780	1580	1740	1690
5	860	5000	4200	6300	7300	6000	1550	1850	2760	1220	1700	1710
6	970	3750	5300	6300	7300	6250	1400	1840	2770	1510	1850	1730
7	1780	3300	4600	6400	7200	6400	1260	1880	2780	1400	1850	1730
8	1790	4400	5500	6800	7400	4800	1620	1430	2270	1600	1850	1730
9	820	3700	6250	7000	7500	4900	2000	1860	2260	1600	1830	1730
10	760	2450	7500	7200	7500	2450	2000	1180	2260	1590	1840	1730
11	830	3850	4600	6800	7000	2440	5900	1160	2260	1600	1840	1730
12	1490	4000	5800	5900	7100	1750	5900	1330	2260	1930	1840	1710
13	1400	4150	4900	5200	7100	1690	5900	1200	2270	1950	1860	1710
14	1400	5040	4900	5800	7000	1670	2500	1930	2270	1950	1850	1720
15	1750	4200	6500	6000	7400	1760	2600	1960	2060	1960	1850	1720
16	1660	5700	6500	6200	7000	1740	2620	2000	2050	1870	1850	1720
17	1780	5000	5300	5600	7100	1750	5900	1430	2060	1650	1850	1710
18	2120	3500	6500	5150	6600	1000	3150	1400	2050	1430	1860	1820
19	1820	4080	6900	6500	7000	960	3150	1500	2050	1640	1850	1700
20	2080	5700	7000	6400	7000	690	3200	1310	2060	1850	1830	1800
21	2150	4400	6400	6300	7000	570	3150	1240	2060	1870	1800	1820
22	2570	4600	7100	6400	7000	530	3150	1440	2060	1670	1780	1820
23	2470	3080	7000	6600	7000	530	3180	1800	2030	1440	1780	1810
24	2450	4650	7100	6500	6900	670	3150	1780	2040	1440	1780	1810
25	2540	5000	7200	6500	6900	700	3150	2140	2030	1440	1780	1810
26	2600	4600	7000	6500	6900	650	3200	2100	2020	1440	1750	1900
27	2650	6400	7700	6600	6900	630	3200	2700	2040	1440	1780	1880
28	2700	6700	7200	6600	6900	660	3300	2680	2040	1440	1780	1880
29	2700	6250	7000	6700	---	730	5600	2710	2040	1440	1730	1900
30	2700	6000	6800	6300	---	860	5550	2700	2040	1630	1700	1860
31	---	---	6800	6700	---	860	---	3240	---	1640	1700	---
MEAN	1850	4520	6010	6360	7080	2520	3080	2150	2270	1620	1780	1770

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	10.0	.0	.0	.0	.0	9.0	15.0	23.0	26.0	23.0	19.0
2	12.0	9.0	.0	.0	.0	.0	10.0	15.0	23.0	26.0	22.0	20.0
3	11.0	9.0	.0	.0	.0	.0	10.0	15.0	23.0	27.0	22.0	23.0
4	10.0	9.0	.0	.0	.0	.0	10.0	13.0	23.0	26.0	23.0	23.0
5	10.0	9.0	1.0	.0	.0	.0	9.0	13.0	22.0	25.0	24.0	24.0
6	10.0	9.0	1.0	.0	.0	.0	9.0	10.0	23.0	24.0	24.0	25.0
7	9.0	6.0	1.0	.0	.0	.0	9.0	8.0	23.0	24.0	24.0	25.0
8	9.0	2.0	1.0	.0	.0	.0	9.0	7.0	23.0	25.0	24.0	24.0
9	9.0	1.0	1.0	.0	.0	1.0	8.0	7.0	24.0	25.0	25.0	22.0
10	9.0	5.0	.0	.0	.0	1.0	8.0	9.0	24.0	25.0	25.0	20.0
11	8.0	5.0	.0	.0	.0	1.0	9.0	10.0	24.0	26.0	25.0	18.0
12	9.0	6.0	1.0	.0	.0	1.0	9.0	11.0	25.0	27.0	25.0	17.0
13	10.0	6.0	1.0	.0	.0	1.0	10.0	14.0	25.0	27.0	25.0	16.0
14	10.0	5.0	.0	.0	.0	1.0	10.0	17.0	25.0	27.0	25.0	15.0
15	10.0	5.0	.0	.0	.0	1.0	10.0	17.0	25.0	27.0	24.0	15.0
16	10.5	4.0	.0	.0	.0	.0	11.0	19.0	25.0	25.0	24.0	14.0
17	10.0	2.0	.0	.0	.0	.0	11.0	18.0	25.0	24.0	24.0	14.0
18	11.0	1.0	.0	.0	.0	.0	12.0	18.0	26.0	22.0	24.0	13.0
19	11.0	.0	.0	.0	.0	3.0	12.0	17.0	26.0	19.0	23.0	11.0
20	11.0	.0	.0	.0	.0	3.0	12.0	17.0	26.0	16.0	23.0	11.0
21	9.5	.0	.0	.0	.0	4.0	13.0	17.0	26.0	16.0	23.0	12.0
22	10.5	.0	.0	.0	.0	3.0	13.0	18.0	26.0	17.0	22.0	14.0
23	11.0	.0	.0	.0	.0	3.0	13.0	19.0	26.0	18.0	22.0	15.0
24	11.0	.0	.0	.0	.0	4.0	14.0	21.0	26.0	20.0	22.0	16.0
25	11.0	.0	.0	.0	.0	5.0	15.0	24.0	27.0	22.0	22.0	17.0
26	11.5	.0	.0	.0	.0	5.0	15.0	23.0	27.0	23.0	22.0	17.0
27	11.0	.0	.0	.0	.0	6.0	15.0	24.0	27.0	29.0	21.0	16.0
28	1.0	.0	.0	.0	.0	8.0	14.0	24.0	27.0	33.0	21.0	15.0
29	---	.0	.0	.0	---	10.0	---	23.0	28.0	23.0	19.0	15.0
30	---	.0	1.0	.0	---	12.0	---	23.0	28.0	23.0	19.0	15.0
31	10.0	---	1.0	.0	---	10.0	---	22.0	---	23.0	19.0	---
MEAN	10.0	3.5	.5	.0	.0	2.5	11.0	16.5	25.0	24.0	23.0	17.5

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD

LOCATION.--Lat 44°30'47", long 103°08'11", in SE¼NW¼ sec.3, T.6 N., R.8 E., Meade County, Hydrologic Unit 10120202, on right bank near upstream end of bridge on State Highway 34, 0.5 mi (0.8 km) upstream from Bear Butte Creek and 20 mi (32 km) northeast of Sturgis.

DRAINAGE AREA.--5,870 mi^2 (15,200 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for some periods, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,526.13 ft (769.964 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1946, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft (236 hm^3), 246 mi (396 km) upstream since February 1952. At a point 75 mi (121 km) above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal (see station 06434500), with other small diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres (243 km^2) above station.

AVERAGE DISCHARGE.--33 years, 279 ft^3/s (7.901 m^3/s), 202,100 acre-ft/yr (249 hm^3/yr); median of yearly mean discharges, 235 ft^3/s (6.66 m^3/s), 170,000 acre-ft/yr (210 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,100 ft^3/s (541 m^3/s) June 15, 1976, gage height, 16.04 ft (4.889 m), from rating curve extended above 11,000 ft^3/s (312 m^3/s); no flow for many days in 1945, 1950, and Aug. 9, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,460 ft^3/s (211 m^3/s) Mar. 21, gage height, 10.77 ft (3.283 m); minimum daily, 25 ft^3/s (0.71 m^3/s) for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	58	70	35	25	40	597	593	1850	361	356	423
2	659	57	70	30	25	40	491	456	1810	457	376	421
3	432	56	75	30	30	40	418	361	1780	416	364	398
4	311	57	75	30	35	40	362	640	1700	373	348	389
5	310	55	70	30	35	40	314	1880	1650	376	344	363
6	224	52	70	35	35	40	280	3250	1600	409	348	366
7	140	54	70	35	32	45	251	3540	1540	590	332	331
8	245	56	70	30	32	45	234	5260	1490	1650	304	339
9	338	67	60	30	32	50	221	5620	1490	1120	293	360
10	390	62	55	25	32	100	207	4720	1280	555	287	391
11	424	61	60	30	32	500	194	3080	1100	475	283	401
12	226	55	65	35	32	1000	192	2930	622	431	307	460
13	162	54	65	35	30	1700	183	2710	451	337	321	405
14	135	55	65	30	30	2000	173	2450	323	298	367	393
15	112	56	65	30	30	2200	167	1980	276	296	564	400
16	103	52	60	25	25	2500	162	1630	263	298	674	339
17	94	59	60	25	25	3000	160	1430	335	369	560	328
18	88	51	55	25	30	3500	178	1440	334	371	515	347
19	83	50	55	25	40	3830	266	2030	348	358	511	357
20	70	45	50	25	50	5380	350	2600	384	377	500	319
21	70	40	55	30	55	6570	259	3010	352	452	497	310
22	79	45	55	35	60	5710	222	3420	326	823	470	301
23	77	45	55	35	60	4190	204	2350	305	860	418	298
24	74	50	50	35	60	2340	184	1800	290	824	398	288
25	68	50	50	30	50	1280	181	1800	280	758	354	291
26	67	60	50	30	45	1210	184	1680	296	615	352	283
27	65	55	50	25	40	1410	203	1740	297	504	375	288
28	61	60	50	25	40	1470	238	1700	281	429	426	297
29	60	65	50	25	---	1200	301	1760	271	380	443	287
30	59	70	45	25	---	942	727	1750	305	384	438	281
31	59	---	45	25	---	750	---	1800	---	372	433	---
TOTAL	5521	1652	1840	915	1047	53162	8103	71410	23629	16318	12558	10454
MEAN	178	55.1	59.4	29.5	37.4	1715	270	2304	788	526	405	348
MAX	659	70	75	35	60	6570	727	5620	1850	1650	674	460
MIN	59	40	45	25	25	40	160	361	263	296	283	281
AC-FT	10950	3280	3650	1810	2080	105400	16070	141600	46870	32370	24910	20740

CAL YR 1977 TOTAL 68255 MEAN 187 MAX 2410 MIN 15 AC-FT 135400
WTR YR 1978 TOTAL 206609 MEAN 566 MAX 6570 MIN 25 AC-FT 409800

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1954-58, 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: August 1954 to September 1958, October 1968 to September 1971, October 1973 to current year.
WATER TEMPERATURES: August 1954 to September 1958, October 1968 to September 1971, October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 5,770 micromhos May 25, 1958; minimum daily, 650 micromhos Feb. 15, 1971.
WATER TEMPERATURES: Maximum daily, 30.0°C June 28, July 4, 7, 9, Aug. 7-10, 1970; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,300 micromhos Dec. 11, 12; minimum daily, 660 micromhos Mar. 24.
WATER TEMPERATURES: Maximum daily, 28.0°C Aug. 11-13; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
OCT										
13...	1145	162	2200	8.0	15.0	680	540	150	73	120
31...	1100	63	3800	8.3	8.5	1300	1100	290	150	210
DEC										
05...	1500	69	3300	7.8	.0	1500	1200	300	180	300
JAN										
04...	1330	30	3500	7.3	.5	1700	1400	340	200	280
FEB										
07...	1030	32	3000	7.6	.0	1400	1200	300	150	200
27...	1100	39	3450	7.8	.5	1400	1100	280	160	240
MAR										
24...	1445	2090	680	7.7	4.5	220	150	53	21	55
MAY										
15...	1500	1960	1090	8.0	19.5	420	310	110	36	43
JUN.										
13...	1200	466	2050	8.1	24.0	450	350	120	37	120
JUL										
14...	1115	294	1760	7.7	23.5	760	600	190	70	96
AUG										
10...	1130	291	1940	7.9	25.0	800	650	190	78	95
SEP										
06...	1400	365	1630	7.8	25.0	820	680	200	76	100

DATE	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
OCT									
13...	28	2.0	10	170	0	140	690	17	.4
31...	25	2.5	12	260	0	210	1500	27	.7
DEC									
05...	30	3.4	15	320	0	260	1800	37	.6
JAN									
04...	26	3.0	15	390	0	320	1900	42	.4
FEB									
07...	24	2.4	13	240	0	200	1400	32	.6
27...	28	2.8	9.9	350	0	290	1400	38	.6
MAR									
24...	35	1.6	5.5	80	0	66	250	9.4	.3
MAY									
15...	18	.9	6.9	140	0	110	360	6.4	.4
JUN									
13...	36	2.5	8.6	130	0	110	500	47	.5
JUL									
14...	21	1.5	9.4	190	0	156	760	14	.6
AUG									
10...	20	1.5	9.8	180	0	150	850	12	.5
SEP									
06...	21	1.5	8.9	170	0	140	830	11	.5

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT									
13...	7.3	1160	1.58	507	1.3	1.0	.01	.01	250
31...	7.2	2340	3.18	398	4.2	.03	.01	.01	470
DEC									
05...	8.5	2830	3.85	527	8.0	.02	.02	.01	520
JAN									
04...	10	3010	4.09	244	7.0	.01	.01	.01	510
FEB									
07...	11	2240	3.05	194	4.4	.01	.01	.01	410
27...	10	2340	3.18	246	6.8	.02	.01	.01	420
MAR									
24...	5.2	443	.60	2500	.84	2.4	.02	.01	110
MAY									
15...	8.8	644	.88	3410	.37	.90	.00	.01	120
JUN									
13...	6.3	905	1.23	1140	.31	.01	.00	.01	120
JUL									
14...	6.6	1240	1.69	984	.66	.08	.01	.04	240
AUG									
10...	5.7	1330	1.81	1040	.59	.03	.00	.01	270
SEP									
06...	6.4	1320	1.80	1300	.63	.06	--	.01	250

DATE	TIME	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)
MAY										
15...	1500	0	22	1	10	2	3	0	5	50
SEP										
06...	1400	60	16	3	0	0	2	80	33	100

DATE	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	NICKEL, DIS-SOLVED (UG/L AS NI) (01065)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)	VANA-DIUM, DIS-SOLVED (UG/L AS V) (01085)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)	CYANIDE TOTAL (MG/L AS CN) (00720)
MAY										
15...	40	--	2	5	2	0	1100	.0	20	.01
SEP										
06...	10	.0	7	0	0	0	2400	.0	20	.00

06437000 BELLE FOURCHE RIVER NEAR STURGIS, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1520	2600	3250	3450	2900	2960	1130	1540	1020	1890	1600	1580
2	1530	2700	3300	3450	2900	2960	1210	1310	980	2150	1700	1580
3	1340	2650	3100	3300	2850	2880	1330	1500	1000	1870	1540	1600
4	1360	2700	3200	3360	2800	2950	1440	1500	960	1830	1580	1650
5	1040	2700	3200	3300	2790	2950	1600	1000	960	1870	1580	1630
6	1100	2750	3300	3240	2750	2900	1730	1430	950	1800	1630	1700
7	1180	2750	3300	3250	2800	2860	1850	1090	955	1780	1620	1640
8	1440	2600	3550	3280	2750	2900	1900	1120	940	1120	1630	1700
9	1440	2800	3700	3200	2720	2750	2000	960	930	1090	1720	1650
10	1210	2800	4200	3290	2770	2400	2050	920	955	1540	1740	1660
11	980	2750	4300	3200	2710	780	2050	1020	970	1670	1790	1630
12	1100	2730	4300	3200	2650	1230	2900	1000	1070	1700	1730	1580
13	1280	2750	4200	3240	2690	1260	2230	900	1400	1800	1730	1550
14	1420	2750	4000	3150	2650	950	2230	870	1600	1880	1720	1600
15	1620	2750	3900	3100	2700	920	2300	930	1850	1880	1650	1570
16	1570	2770	3800	3040	2700	1040	2330	1000	1950	1800	1620	1580
17	1580	2900	3600	3000	2790	1120	2280	1100	1650	1900	1630	1620
18	1660	2830	3250	3090	2690	1220	2200	1090	1700	1930	1640	1600
19	1690	2850	3300	3040	2790	1030	2270	1220	1650	1880	1620	1620
20	1720	2900	3600	3050	2710	950	2900	1120	1800	1880	1620	1620
21	1730	2950	3700	3200	2700	820	2150	950	1750	1730	1630	1720
22	1710	2950	3700	3090	2760	730	2800	855	1650	1820	1600	1680
23	1700	3000	3550	3090	2750	690	2430	900	1700	1750	1650	1690
24	1760	3050	3500	3080	2700	660	2480	960	1800	1640	1630	1720
25	1800	3100	3550	3010	2710	800	2350	1510	1800	1550	1670	1680
26	1830	3150	3600	2990	2700	970	2420	1000	1800	1590	1710	1700
27	1830	3200	3600	3100	2900	930	2100	1020	1650	1660	1720	1700
28	1830	3250	3550	3100	2940	820	1700	1000	1650	1730	1710	1730
29	1820	3300	3700	2900	---	840	1270	1150	1700	1770	1700	1730
30	1820	3300	3600	2880	---	910	1450	1100	1650	1800	1650	1760
31	1850	---	3450	3500	---	1000	---	1080	---	1830	1650	---
MEAN	1530	2880	3610	3170	2760	1550	2040	1100	1410	1750	1660	1650

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.5	7.0	---	---	.0	.0	8.5	10.0	15.0	23.0	25.0	20.0
2	11.5	5.0	.5	.0	.0	.0	10.0	10.0	15.5	23.0	22.0	21.0
3	9.0	5.5	.0	.0	.0	.0	9.0	11.0	18.0	22.5	21.5	---
4	11.0	5.5	1.0	.0	.0	.0	9.0	12.0	19.5	23.5	24.0	21.5
5	8.0	10.5	.0	.0	.0	.0	11.5	11.0	18.5	23.5	20.0	22.0
6	8.5	7.0	.0	.0	.0	.0	9.0	9.5	22.5	23.5	27.5	21.5
7	9.5	5.5	.0	---	.0	.0	9.0	8.0	22.0	22.5	22.5	25.0
8	8.5	5.0	.0	.0	.0	.0	7.5	6.5	20.5	20.5	22.0	21.0
9	11.0	---	.0	.0	.0	.0	9.0	6.0	20.0	20.5	22.0	24.0
10	7.0	5.5	.0	.0	.0	.0	5.0	10.5	21.0	23.5	22.5	24.5
11	4.0	2.0	.0	.0	.0	.0	6.0	13.0	20.0	20.5	28.0	20.0
12	10.5	6.0	.0	.0	.0	.5	9.5	---	17.5	21.5	28.0	16.0
13	8.5	---	---	.0	.0	1.0	12.5	---	25.5	23.5	28.0	14.5
14	10.0	4.0	---	.0	.0	1.0	8.0	15.5	27.5	27.5	22.0	13.5
15	12.0	6.0	.0	.0	.0	.5	---	15.5	29.5	22.5	23.5	14.5
16	13.0	3.0	.0	.0	.0	.5	.0	19.5	25.0	26.0	20.0	18.0
17	14.0	.5	.0	.0	.0	.5	8.0	17.0	19.5	26.5	20.5	14.0
18	8.0	1.0	.0	.0	.0	.5	4.5	15.0	23.0	23.0	18.5	---
19	8.5	---	.0	.0	.0	1.0	8.5	14.5	20.5	21.0	16.0	9.0
20	13.0	---	.0	.0	.0	1.0	6.0	12.5	22.5	21.0	18.0	9.0
21	10.5	---	.0	.0	.0	3.0	5.5	---	18.5	19.0	19.5	10.0
22	10.0	---	.0	.0	.0	4.0	7.0	16.0	20.5	18.0	20.0	10.5
23	14.0	---	.0	.0	---	4.0	12.5	17.0	22.0	20.0	19.0	18.0
24	9.5	---	.0	.0	.0	3.0	7.5	19.5	25.0	26.0	21.0	13.0
25	9.0	---	---	.0	.0	4.0	9.5	20.0	25.0	25.5	23.0	14.5
26	10.0	---	.0	.0	.0	7.5	10.5	20.0	20.0	22.5	21.0	18.0
27	13.5	---	.0	.0	.0	9.5	15.5	19.5	25.0	23.0	27.0	14.0
28	8.0	---	.0	.0	.0	8.0	13.5	11.5	20.5	23.5	21.5	14.0
29	13.0	---	.0	.0	---	8.0	12.0	20.0	23.5	23.0	18.0	14.0
30	11.0	---	.0	.0	---	9.5	10.5	17.0	23.5	26.0	18.0	16.0
31	8.0	---	.0	.0	---	12.0	---	16.5	---	26.5	19.5	---
MEAN	10.0	5.0	.0	.0	.0	2.5	9.0	14.0	21.5	23.0	22.0	17.0

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD

LOCATION.--Lat 44°22'11", long 102°33'56", in NE¼NE¼ sec.29, T.5 N., R.13 E., Meade County, Hydrologic Unit 10120202, on right bank 10 ft (3 m) downstream from highway bridge, 4.3 mi (6.9 km) northwest of Elm Springs and 4.7 mi (7.6 km) downstream from Hay Creek.

DRAINAGE AREA.--7,210 mi^2 (18,670 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to June 1932, March 1934 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 926: 1929, 1931(M), 1935, 1937.

GAGE.--Water-stage recorder. Datum of gage is 2,171.60 ft (661.904 m) National Geodetic Vertical Datum of 1929. Prior to July 27, 1939, nonrecording gage at same site and datum.

REMARKS.--Records good except those over 1,000 ft^3/s (28.3 m^3/s), which are fair and those for winter periods, which are poor. Flow regulated by Keyhole Reservoir, usable capacity, 191,600 acre-ft (236 hm^3), 304 mi (489 km) upstream since February 12, 1952. At a point 133 mi (214 km) above station, water is diverted to Belle Fourche Reservoir (see station 06435000), through Inlet Canal near Belle Fourche (see station 06434500), with other smaller diversions from the main stem and tributaries for irrigation. Total diversion for irrigation of about 60,000 acres (243 km^2) above station.

AVERAGE DISCHARGE.--47 years (water years 1929-31, 1935-78), 370 ft^3/s (10.5 m^3/s), 268,100 acre-ft/yr (331 hm^3/yr); median of yearly mean discharges, 357 ft^3/s (10 m^3/s), 259,000 acre-ft/yr (319 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 45,100 ft^3/s (1,280 m^3/s) June 8, 1964, gage height, 15.90 ft (4.846 m), from rating curve extended above 23,000 ft^3/s (651 m^3/s); no flow for many days in 1936-37, 1939-40, 1961-62.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 1927 reached a stage of 21.8 ft (6.64 m). Flood in spring of 1933 reached a stage of about 20 ft (6.1 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,300 ft^3/s (518 m^3/s) Mar. 20, gage height, 11.93 ft (3.636 m); minimum daily, 25 ft^3/s (0.71 m^3/s) many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	207	76	65	40	25	45	786	1160	2050	312	364	432
2	2030	76	70	38	25	45	611	765	2020	364	355	427
3	934	76	70	35	25	43	470	599	2010	427	373	422
4	432	74	70	35	25	40	402	481	1980	402	364	412
5	324	72	68	35	25	40	364	1370	1920	368	346	402
6	299	70	65	35	25	42	324	1670	1800	412	337	382
7	236	70	60	35	25	45	279	4240	1720	665	342	378
8	189	72	55	35	25	50	244	7480	1690	1030	324	368
9	333	65	50	35	25	90	228	8210	1680	1570	312	364
10	324	60	55	35	25	250	214	5950	1670	849	303	378
11	382	55	60	35	25	700	203	3470	1310	545	299	402
12	346	60	65	35	25	1200	200	3020	958	476	295	448
13	214	66	70	35	25	1500	186	3520	587	422	312	482
14	169	63	70	35	25	2000	182	2810	437	346	329	402
15	147	61	70	32	25	2410	179	1940	333	312	417	382
16	132	59	65	30	25	1660	172	1630	287	303	593	377
17	123	55	60	30	25	1230	172	1460	283	312	641	333
18	115	50	55	30	30	2450	221	1540	337	373	528	329
19	108	30	55	30	35	8020	448	1900	333	392	493	337
20	101	25	50	32	45	14200	605	2860	350	382	493	346
21	96	40	55	35	55	9410	528	2690	382	470	476	316
22	96	45	60	40	70	8990	364	3660	359	820	482	303
23	96	45	60	40	70	6490	324	2920	333	1180	454	295
24	96	50	55	40	70	3780	291	2010	312	998	412	291
25	92	45	50	35	60	1750	255	1820	303	835	397	275
26	89	50	50	30	50	1820	228	1790	291	704	368	275
27	87	55	50	28	48	1880	221	1820	299	563	368	279
28	83	60	50	26	45	2100	225	1870	308	470	432	279
29	83	65	50	25	---	1630	447	1870	299	417	448	279
30	83	65	47	25	---	1270	777	1970	299	377	448	275
31	81	---	45	25	---	990	---	1930	---	368	443	---
TOTAL	8127	1755	1820	1031	1003	76170	10150	80425	26940	17464	12548	10670
MEAN	262	58.5	58.7	33.3	35.8	2457	338	2594	898	563	405	356
MAX	2030	76	70	40	70	14200	786	8210	2050	1570	641	482
MIN	81	25	45	25	25	40	172	481	283	303	295	275
AC-FT	16120	3480	3610	2040	1990	151100	20130	159500	53440	34640	24890	21160

CAL YR 1977 TOTAL 81066 MEAN 222 MAX 5930 MIN 15 AC-FT 160800
WTR YR 1978 TOTAL 248103 MEAN 680 MAX 14200 MIN 25 AC-FT 492100

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: November 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,600 micromhos Jan. 6, 1976; minimum daily, 800 micromhos June 19, 1976.
WATER TEMPERATURES: Maximum daily, 33.5°C June 25, 1977; minimum, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 4,100 micromhos Dec. 4, 7, 9, 10; minimum daily, 755 micromhos Mar. 20.
WATER TEMPERATURES: Maximum daily, 27.5°C June 14; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
17...	1300	122	1500	8.2	11.0	210	--	9.6	200	490	750
NOV											
08...	1200	72	2650	8.0	4.0	20	--	11.5	20	40	1200
DEC											
05...	1500	67	3600	7.9	.5	4	--	--	--	--	1600
FEB											
07...	1115	25	3500	8.7	.0	1	--	7.6	25	9	1600
MAR											
06...	1115	42	3400	7.9	.0	2	--	8.3	6	14	1500
22...	1500	9030	700	7.7	4.5	4000	--	9.6	160	680	190
MAY											
08...	1500	7670	1200	8.3	7.0	4400	--	9.9	5000	6170	340
JUN											
14...	1300	475	1540	8.2	22.0	--	260	8.1	120	100	560
JUL											
10...	1330	814	1220	8.0	17.0	--	820	8.3	1230	1820	260
AUG											
02...	1300	343	1750	7.9	20.5	--	70	8.2	40	40	740
SEP											
13...	1400	478	1780	8.2	18.0	--	2.9	9.4	80	90	760

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT										
17...	600	160	86	150	30	2.4	12	190	0	160
NOV										
08...	1000	240	150	210	27	2.6	17	220	0	180
DEC										
05...	1300	320	200	240	24	2.6	17	360	0	300
FEB										
07...	1300	330	180	260	26	2.9	15	300	0	250
MAR										
06...	1200	330	170	280	28	3.1	15	390	0	320
22...	120	50	16	48	35	1.5	5.8	81	0	66
MAY										
08...	250	86	31	110	40	2.6	7.8	110	0	90
JUN										
14...	400	130	56	93	26	1.7	9.6	--	--	160
JUL										
10...	190	98	4.7	69	35	1.8	7.7	--	--	70
AUG										
02...	630	180	71	100	22	1.6	9.0	--	--	110
SEP										
13...	630	190	69	88	20	1.4	8.3	--	--	130

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 17...	1300	--	--	6.9	9700	--	--	498	164	95
NOV 08...	1200	--	--	3.3	2000	--	--	386	75	95
DEC 05...	1500	--	--	4.3	--	--	--	365	64	80
FEB 07...	1115	--	--	3.8	--	--	--	--	--	--
MAR 06...	1115	18	.4	5.0	760	--	--	410	46	89
22...	1500	--	--	72	68	--	--	2190	53700	31
MAY 08...	1500	--	--	53	1400	--	--	11800	245000	86
JUN 14...	1300	6.3	>5.0	11	140	--	--	666	854	97
JUL 10...	1330	--	--	17	350	--	--	1790	3930	98
SEP 13...	1400	--	--	7.8	--	--	--	265	342	81

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
MAR 06...	1115	27	3	24	0	0	2	10	0	10	0
JUN 14...	1300	100	84	16	0	0	1	15	15	0	6
AUG 02...	1300	45	30	15	8	1	7	10	10	0	1

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
MAR 06...	0	0	9	7	2	240	10	9	4	5	500
JUN 14...	6	0	25	23	2	15000	80	24	16	8	690
AUG 02...	1	0	13	11	2	4300	10	15	5	10	140

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
MAR 06...	60	440	.0	.0	.0	19	5	14	20	10	10
JUN 14...	660	30	.1	.1	.0	2	0	2	70	50	20
AUG 02...	140	3	.1	.1	.0	4	0	4	60	60	3

> More than.

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT										
17...	860	22	.5	7.8	1510	1390	2.05	497	1.7	--
NOV										
08...	1400	29	.6	4.6	2260	2160	3.07	439	3.1	--
DEC										
05...	1800	38	.6	7.9	3320	2800	4.52	601	4.9	--
FEB										
07...	1600	48	.6	10	2960	2590	4.03	200	4.6	.79
MAR										
06...	1600	44	.6	10	2910	2640	3.96	330	6.0	1.2
22...	230	5.9	.3	4.6	405	401	.55	9870	.81	10
MAY										
08...	470	14	.4	6.6	799	780	1.09	16500	1.4	9.2
JUN										
14...	540	13	.5	5.1	1000	944	1.36	1280	.23	.96
JUL										
10...	400	4.1	.4	6.0	709	632	.96	1560	.37	2.4
AUG										
02...	780	12	.5	5.2	1370	1220	1.86	1270	.07	.75
SEP										
13...	790	10	.5	6.0	1360	1240	1.85	1760	.59	.67

DATE	NITRO- GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO- GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO- GEN, AM- MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO- GEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO- GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO- GEN, TOTAL (MG/L AS N) (00600)	NITRO- GEN, TOTAL (MG/L AS NO3) (71887)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)
OCT										
17...	--	.12	.72	--	--	--	--	--	.00	.25
NOV										
08...	--	.08	.61	--	--	--	--	--	.00	.02
DEC										
05...	--	.55	1.1	--	--	--	--	--	.01	.02
FEB										
07...	.40	.39	.47	.32	--	--	5.4	24	.01	.01
MAR										
06...	.64	.56	.93	.27	--	--	7.2	32	.01	.01
22...	9.8	.22	.45	9.6	--	--	11	48	.08	2.3
MAY										
08...	9.1	.06	.85	8.4	--	--	11	47	.05	3.9
JUN										
14...	.96	.00	.37	.59	--	--	1.2	5.3	.01	.39
JUL										
10...	2.4	.00	.27	2.1	--	--	2.8	12	.03	1.2
AUG										
02...	.74	.01	.35	.40	--	--	.82	3.6	.01	.13
SEP										
13...	.65	.02	.47	.20	--	--	1.3	5.6	.02	.08

DATE	TIME	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	TEMPER- ATURE (DEG C) (00010)	OXYGEN, DIS- SOLVED (MG/L) (00300)	SPE- CIFIC CON- DUCT- ANCE (MICRO- MHOS) (00095)	PH (UNITS) (00400)
SEP						
13...	1600	468	18.5	9.2	1830	8.2
13...	1800	468	18.0	8.8	--	--
13...	2000	456	17.0	8.8	--	--
13...	2200	450	16.5	8.8	--	--
13...	2400	438	16.0	9.4	--	--
14...	0200	426	15.5	8.5	--	--
14...	0400	420	14.5	8.1	--	--
14...	0600	408	14.0	8.2	--	--
14...	0800	408	14.5	8.7	--	--
14...	1000	402	15.0	9.5	--	--
14...	1200	396	17.0	9.8	--	--
14...	1400	396	18.5	9.8	--	--

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1340	1440	3700	3900	3190	3500	1080	1560	1060	1750	1670	1600
2	1020	1750	3700	3900	3400	3100	1220	1560	1040	1750	1650	1640
3	1000	1750	3700	3950	3210	3380	1300	1340	1040	1760	1650	1650
4	1200	930	4100	3690	3400	3350	1650	1340	1140	1600	1720	1650
5	1340	1420	3700	3700	2900	3500	1650	1420	1010	1570	1630	1650
6	1010	1000	3700	3450	2900	3400	1650	1440	1000	1650	1670	1550
7	1100	1340	4100	3450	2900	3450	1880	1260	1010	1380	1680	1680
8	1100	2160	3700	3410	2900	3300	1880	1180	1000	1250	1680	1670
9	1060	1850	4100	3400	2900	3150	2100	1150	990	1100	1690	1680
10	1020	1750	4100	3400	2900	910	2100	990	1100	1000	1690	1670
11	1020	1560	3900	3410	2900	890	2300	1020	1100	1670	1820	1640
12	1030	1180	3900	3410	2900	870	2300	1040	1200	1670	1810	1660
13	1030	1680	3900	3450	2900	840	2280	915	1300	1680	1770	1630
14	1010	1600	3900	3450	2900	855	2250	830	1370	1680	1770	1630
15	1200	1200	3900	3450	2900	860	2400	870	1750	1680	1760	1600
16	1440	1260	3900	3410	2900	840	2400	945	2150	1680	1630	1620
17	1440	1430	3900	3450	2900	910	2430	1320	1750	1700	1630	1640
18	1600	1190	3900	3450	2900	975	1850	1320	1700	1670	1630	1640
19	1560	3600	3900	3400	2900	800	2230	1390	1700	1650	1600	1620
20	1600	3600	3900	3450	2900	755	1730	1300	1800	1680	1590	1620
21	1630	3600	3900	3450	2900	930	1880	1110	1700	1630	1630	1670
22	1650	3600	3900	3400	2900	840	2230	930	1850	1380	1630	1710
23	1670	3600	3900	3400	2900	840	2230	940	1900	1380	1630	1710
24	1680	3600	3900	3480	2900	830	2230	1000	1950	1380	1720	1720
25	1700	3600	3850	3450	2900	950	2430	1040	1850	1480	1720	1690
26	1730	3600	3900	3410	2900	1010	2400	1040	1850	1480	1730	1730
27	1820	3600	3900	3400	3000	970	2400	1040	1750	1480	1730	1700
28	1820	3600	3900	3480	3000	960	2430	1020	1770	1480	1720	1760
29	1820	3600	3900	3410	---	950	1550	1000	1800	1580	1660	1760
30	1820	3600	3900	3440	---	960	1550	1060	1700	1570	1660	1760
31	1820	---	4000	3440	---	1050	---	1020	---	1570	1660	---
MEAN	1400	2320	3890	3490	2960	1610	2000	1140	1480	1550	1680	1670

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	9.0	.0	.0	.0	.0	10.0	10.0	15.0	25.0	23.0	20.5
2	9.0	10.0	1.0	.0	.0	.0	8.0	11.5	18.0	25.0	21.0	21.0
3	10.0	10.0	1.0	.0	.0	.0	9.0	13.0	20.0	24.0	23.5	23.0
4	14.0	10.0	.0	.0	.0	.5	10.0	14.0	22.0	24.0	21.0	23.0
5	12.5	10.0	.0	.0	.0	.0	9.0	14.5	22.0	25.0	23.0	24.0
6	12.0	8.0	.0	.0	.0	.5	10.0	11.0	24.0	24.5	26.0	24.0
7	10.0	5.0	.0	.0	.0	.5	9.0	9.0	20.0	22.0	25.5	22.0
8	8.0	3.5	.0	.0	.0	1.0	8.0	7.5	22.0	---	24.0	22.0
9	8.5	2.0	.0	.0	.0	1.0	9.0	7.0	22.0	---	23.5	23.0
10	10.0	3.0	.0	.0	.0	1.0	6.0	10.0	---	24.0	23.0	20.0
11	10.0	3.0	.0	.0	.0	1.0	5.0	13.0	---	25.0	22.0	17.5
12	9.5	5.0	.0	.0	.0	1.0	7.0	13.0	---	24.5	23.0	16.0
13	11.5	5.0	.0	.0	.0	1.0	8.0	13.0	---	25.0	25.0	15.0
14	11.0	5.0	.5	.0	.0	1.0	9.0	14.0	27.5	26.0	25.0	14.0
15	10.5	4.0	.0	.0	.0	3.0	5.0	15.5	26.0	27.0	19.0	13.0
16	10.0	4.5	.0	.0	.0	4.0	6.0	18.0	20.0	24.0	21.5	16.0
17	12.5	4.0	.5	.0	.0	6.0	9.0	17.0	23.0	23.5	19.0	14.0
18	14.0	3.0	1.0	.0	.5	6.5	6.5	15.0	20.0	24.5	18.0	13.0
19	15.0	1.0	.0	.0	1.0	6.0	5.5	13.0	19.0	25.5	19.0	13.0
20	15.0	1.0	.0	.0	.5	7.5	4.5	14.0	17.0	21.0	22.0	11.0
21	12.0	.0	.0	.0	.5	4.0	8.5	17.0	19.0	19.0	23.5	13.0
22	14.0	.0	.5	.0	1.0	4.0	7.0	19.0	20.0	20.0	21.0	13.0
23	14.5	.0	.0	.0	1.0	3.0	9.0	21.0	21.0	22.0	22.0	15.0
24	13.0	1.0	.0	.0	.5	6.0	8.5	19.0	21.0	22.5	23.0	20.0
25	14.5	1.0	.0	.0	.0	5.0	9.5	20.5	22.0	21.0	19.0	20.0
26	15.0	.0	.0	.0	.5	4.0	11.5	20.0	23.0	23.0	21.0	24.0
27	13.0	.0	.0	.0	.0	7.0	16.5	20.0	24.5	26.5	19.0	20.0
28	15.0	.0	.0	.0	.5	9.0	16.0	19.0	26.0	27.0	19.0	19.5
29	13.0	.0	.0	.0	---	9.5	13.0	18.0	25.0	26.0	19.0	11.0
30	13.0	.0	.0	.0	---	10.5	15.0	20.0	25.0	24.0	20.0	12.0
31	14.0	---	.0	.0	---	12.5	---	18.0	---	23.0	20.5	---
MEAN	12.0	3.5	.0	.0	.0	3.5	9.0	15.0	21.5	24.0	21.5	18.0

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	OCT 17.77	NOV 8.77	MAR 6.78	MAR 22.78
TIME	1300	1200	1115	1500
TOTAL CELLS/ML	9700	2000	760	68
DIVERSITY: DIVISION	1.0	0.6	1.3	0.0
.CLASS	1.0	0.6	1.3	0.0
..ORDER	1.1	0.7	1.8	0.0
...FAMILY	1.3	1.9	2.8	0.0
....GENUS	1.3	1.9	2.9	0.0

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CHLOROPHYTA (GREEN ALGAE)								
.CHLOROPHYCEAE								
..CHLOROCOCCALES								
...MICRACTINIACEAE								
....GOLENKINIA	--	-	1100#	55	--	-	--	-
...OOCYSTACEAE								
....ANKISTRODESMUS	230	2	410#	21	13	2	--	-
...SCENEDESMACEAE								
....SCENEDESMUS	1400	14	170	9	13	2	--	-
..VOLVOCALES								
...CHLAMYDOMONADACEAE								
....CARTERIA	--	-	34	2	--	-	--	-
....CHLAMYDOMONAS	230	2	--	-	57	7	--	-
CHRYSOPHYTA								
.BACILLARIOPHYCEAE								
..CENTRALES								
...COSCINODISCACEAE								
....CYCLOTELLA	75	1	--	-	13	2	--	-
..PENNALES								
...ACHNANTHACEAE								
....ACHNANTHES	--	-	--	-	250#	33	--	-
....COCCONEIS	--	-	--	-	--	-	--	-
...FRAGILARIACEAE								
....SYNEDRA	--	-	120	6	32	4	68#	100
...NAVICULACEAE								
....NAVICULA	75	1	34	2	6	1	--	-
...NITZSCHIACEAE								
....NITZSCHIA	450	5	120	6	--	-	--	-
...SURIRELLACEAE								
....SURIRELLA	--	-	--	-	130#	17	--	-
...TABELLARIACEAE								
....TABELLARIA	--	-	--	-	6	1	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)								
.CYANOPHYCEAE								
..CHROCCOCCALES								
...CHROCCOCCAEAE								
....AGMENELLUM	--	-	--	-	100	13	--	-
..HORMOGONALES								
...OSCILLATORIACEAE								
....LYNGBYA	--	-	--	-	50	7	--	-
....OSCILLATORIA	7300#	75	--	-	63	8	--	-
...RIVULARIACEAE								
....RAPHIDIOPSIS	--	-	--	-	25	3	--	-
EUGLENOPHYTA (EUGLENOIDS)								
.EUGLENOPHYCEAE								
..EUGLENALES								
...EUGLENACEAE								
....EUGLENA	--	-	--	-	--	-	--	-
....TRACHELOMONAS	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06438000 BELLE FOURCHE RIVER NEAR ELM SPRINGS, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	MAY 8,78	JUN 14,78	JUL 10,78
TIME	1500	1300	1330
TOTAL CELLS/ML	1400	140	350
DIVERSITY: DIVISION	0.0	0.8	1.6
.CLASS	0.0	0.8	1.6
..ORDER	0.0	1.2	1.6
...FAMILY	1.0	2.2	1.6
....GENUS	1.0	2.2	1.8

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)						
.CHLOROPHYCEAE						
..CHLOROCOCCALES						
...MICRACTINIACEAE						
....GOLENKINIA	--	-	--	-	--	-
...OOCYSTACEAE						
....ANKISTRODESMUS	--	-	--	-	23	7
...SCENEDESMACEAE						
....SCENEDESMUS	--	-	30#	22	--	-
..VOLVOCALES						
...CHLAMYDOMONADACEAE						
....CARTERIA	--	-	--	-	--	-
....CHLAMYDOMONAS	--	-	--	-	--	-
CHRYSOPHYTA						
.BACILLARIOPHYCEAE						
..CENTRALES						
...COSCINODISCACEAE						
....CYCLOTELLA	--	-	15	11	--	-
..PENNALES						
...ACHNANTHACEAE						
....ACHNANTHES	--	-	--	-	--	-
....COCCONEIS	--	-	30#	22	--	-
...FRAGILARIACEAE						
....SYNEDRA	700#	50	--	-	--	-
...NAVICULACEAE						
....NAVICULA	700#	50	15	11	23	7
...NITZSCHIACEAE						
....NITZSCHIA	--	-	45#	33	--	-
...SURIRELLACEAE						
....SURIRELLA	--	-	--	-	--	-
...TABELLARIACEAE						
....TABELLARIA	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)						
.CYANOPHYCEAE						
..CHROCOCCALES						
...CHROCOCCACEAE						
....AGMENELLUM	--	-	--	-	--	-
..HORMOGONALES						
...OSCILLATORIACEAE						
....LYNGBYA	--	-	--	-	--	-
....OSCILLATORIA	--	-	--	-	160#	47
...RIVULARIACEAE						
....RAPHIDIOPSIS	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)						
.EUGLENOPHYCEAE						
..EUGLENALES						
...EUGLENACEAE						
....EUGLENA	--	-	--	-	23	7
....TRACHELOMONAS	--	-	--	-	120#	33

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06438500 CHEYENNE RIVER NEAR PLAINVIEW, SD

LOCATION.--Lat 44°31'16", long 101°59'34", in NE¼SW¼ sec.31, T.7 N., R.18 E., Ziebach County, Hydrologic Unit 10120112, near left bank on downstream side of highway bridge, 1.0 mi (1.6 km) downstream from Ash Creek and 10 mi (16 km) southeast of Plainview.

DRAINAGE AREA.--21,600 mi^2 (55,900 km^2), approximately.

PERIOD OF RECORD.--October 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,877.65 ft (572.308 m) National Geodetic Vertical Datum of 1929. Prior to Mar. 22, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow slightly regulated by Angostura Reservoir 164 mi (264 km) upstream (see station 06401000) since October 1949 and upstream reservoirs on Rapid Creek since 1956 and Belle Fourche River since 1952. Flow also affected by diversions for irrigation of about 70,000 acres (283 km^2) and return flow from irrigated areas. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 641 ft^3/s (18.15 m^3/s), 464,400 acre-ft/yr (573 hm^3/yr); median of yearly mean discharges, 630 ft^3/s (17.8 m^3/s), 456,000 acre-ft/yr (560 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,700 ft^3/s (1,180 m^3/s) May 26, 1957, from rating curve extended above 18,000 ft^3/s (510 m^3/s); maximum gage height, 11.68 ft (3.560 m) May 26, 1965; no flow Dec. 14, 19-21, 1961.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood late in May 1920 reached a stage of about 17.5 ft (5.33 m), and flood in May 1927 reached a stage of about 14 ft (4.3 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,200 ft^3/s (742 m^3/s) May 23, gage height, 10.48 ft (3.194 m); minimum daily, 48 ft^3/s (1.36 m^3/s) Dec. 12.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	512	209	85	90	80	90	1530	2100	4260	424	675	539
2	1480	209	90	90	80	90	1310	1460	3530	444	665	523
3	1460	205	90	90	85	90	1140	1020	3050	516	741	500
4	703	205	90	90	85	85	923	771	2910	622	1180	486
5	465	201	90	95	85	85	656	613	2750	613	1050	465
6	386	201	90	95	85	90	539	1540	2670	732	732	411
7	373	205	85	95	85	90	500	2660	2490	622	684	411
8	328	216	80	90	85	90	472	6350	2320	957	639	417
9	317	219	70	90	90	100	417	8900	2210	1340	595	386
10	405	243	60	88	90	120	444	7650	2060	1330	531	392
11	334	231	50	90	90	700	444	5540	1950	823	451	411
12	424	239	48	90	90	4000	451	4190	1850	570	486	411
13	398	248	50	90	90	7270	451	7030	1510	531	451	444
14	323	248	60	90	95	5540	444	5740	1270	424	444	493
15	274	248	80	85	95	4720	458	3800	1050	373	493	451
16	260	231	100	85	95	5220	472	3100	792	700	680	472
17	252	223	150	85	90	4050	493	2670	700	915	1140	465
18	239	223	180	85	90	5960	562	2260	700	450	834	411
19	235	200	200	85	85	11900	648	2120	769	350	722	398
20	231	100	200	85	85	16600	1190	3240	700	450	684	430
21	227	70	180	90	85	18100	1100	8850	694	694	665	486
22	227	50	160	90	85	15100	980	17700	741	1970	622	444
23	223	55	150	90	90	10500	1020	19300	732	2750	539	411
24	223	55	150	90	95	5980	957	7670	630	1700	500	386
25	219	60	140	90	95	3470	751	5460	516	1330	516	373
26	219	70	130	85	95	2690	639	4800	465	1100	479	356
27	219	75	120	85	95	2800	578	4400	516	900	350	339
28	216	75	120	85	90	2830	587	4430	493	1150	839	328
29	216	80	110	85	---	2670	802	3710	523	1390	1330	334
30	212	85	100	85	---	2260	1080	3710	516	1050	732	323
31	209	---	95	85	---	1850	---	5510	---	722	656	---
TOTAL	11809	4979	3403	2743	2485	135140	22038	158294	45367	27942	21105	12696
MEAN	381	166	110	88.5	88.8	4359	735	5106	1512	901	681	423
MAX	1480	248	200	95	95	18100	1530	19300	4260	2750	1330	539
MIN	209	50	48	85	80	85	417	613	465	350	350	323
AC-FT	23420	9880	6750	5440	4930	268100	43710	314000	89990	55420	41860	25180

CAL YR 1977 TOTAL 160031 MEAN 438 MAX 8900 MIN 35 AC-FT 317400
WTR YR 1978 TOTAL 448001 MEAN 1227 MAX 19300 MIN 48 AC-FT 888600

06439000 CHERRY CREEK NEAR PLAINVIEW, SD

LOCATION.--Lat 44°44'38", long 102°03'11", in SW¼NE¼ sec.16, T.9 N., R.17 E., Meade County, Hydrologic Unit 10120113, on left bank 5 ft (2 m) downstream from bridge on State Highway 73, 0.2 mi (0.3 km) downstream from small right-bank tributary, 6.2 mi (10.0 km) downstream from Red Owl Creek, and 11 mi (18 km) northeast of Plainview.

DRAINAGE AREA.--1,190 mi^2 (3,080 km^2), approximately.

PERIOD OF RECORD.--October 1945 to current year. Monthly discharge only for October and November 1945, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,158.06 ft (657.777 m) National Geodetic Vertical Datum of 1929. Prior to June 8, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 47.2 ft^3/s (1.337 m^3/s), 34,200 acre-ft/yr (42.2 hm^3/yr); median of yearly mean discharges, 28 ft^3/s (0.79 m^3/s), 20,300 acre-ft/yr (25 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,500 ft^3/s (496 m^3/s) Apr. 1, 1952, gage height, 22.63 ft (6.898 m); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)	Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)
Mar. 22	1300	*9210	261	*19.60	5.974	May 28	0100	1950	55.2	11.78	3.591

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	.80	.60	.00	.00	.00	672	196	39	.15	12	.00
2	72	1.0	.45	.00	.00	.00	532	175	32	.00	8.5	.00
3	150	1.0	.45	.00	.00	.00	374	153	27	.00	6.8	.00
4	65	1.0	.45	.00	.00	.00	274	103	21	.00	4.7	.00
5	40	1.2	.30	.00	.00	.00	221	70	21	.00	3.0	.00
6	20	1.2	.15	.00	.00	.00	188	59	19	.00	2.1	.00
7	15	1.0	.15	.00	.00	.00	159	70	16	5.4	1.2	.00
8	12	.80	.10	.00	.00	.00	125	58	28	61	.30	.00
9	10	.80	.05	.00	.00	.00	100	63	21	64	.00	.00
10	12	.80	.00	.00	.00	.00	81	278	15	220	.00	.00
11	15	1.0	.00	.00	.00	.00	67	400	13	107	.00	.00
12	14	1.0	.00	.00	.00	.00	57	378	9.9	57	.00	.00
13	8.0	1.0	.00	.00	.00	.00	47	163	8.9	40	.00	.00
14	2.5	.80	.00	.00	.00	1.0	41	112	8.2	28	.00	.00
15	1.0	.80	.00	.00	.00	5.0	40	82	6.1	20	.00	.00
16	.40	.60	.00	.00	.00	10	37	63	6.1	13	.00	.00
17	.45	.40	.00	.00	.00	20	33	51	5.8	9.9	14	.00
18	2.9	.20	.00	.00	.00	40	43	44	5.6	7.1	37	.00
19	7.8	.10	.00	.00	.00	100	67	45	4.7	4.2	39	.00
20	6.1	.10	.00	.00	.00	1000	146	37	3.4	11	29	.00
21	4.4	.10	.00	.00	.00	2500	182	31	3.0	16	18	.00
22	3.9	.15	.00	.00	.00	7280	391	37	3.0	73	12	.00
23	3.6	.45	.00	.00	.00	6120	499	50	2.8	98	8.2	.00
24	2.6	.45	.00	.00	.00	4240	781	42	2.6	53	5.3	.00
25	1.9	.15	.00	.00	.00	3040	514	39	2.1	82	3.4	.00
26	1.5	.60	.00	.00	.00	1840	291	35	1.7	102	1.7	.00
27	1.5	.75	.00	.00	.00	1680	149	397	1.2	59	.90	.00
28	1.0	.60	.00	.00	.00	1640	107	770	.90	41	4.4	.00
29	1.0	.45	.00	.00	---	1410	239	141	.45	29	2.1	.00
30	.80	.60	.00	.00	---	1130	240	82	.15	22	.15	.00
31	.80	---	.00	.00	---	866	---	56	---	17	.00	---
TOTAL	491.15	19.90	2.70	.00	.00	32922.00	6697	4280	328.60	1239.75	213.75	.00
MEAN	15.8	.66	.087	.000	.000	1062	223	138	11.0	40.0	6.90	.000
MAX	150	1.2	.60	.00	.00	7280	781	770	39	220	39	.00
MIN	.40	.10	.00	.00	.00	.00	33	31	.15	.00	.00	.00
AC-FT	974	39	5.4	.00	.00	65300	13280	8490	652	2460	424	.00

CAL YR 1977 TOTAL 2289.31 MEAN 6.27 MAX 442 MIN .00 AC-FT 4540
WTR YR 1978 TOTAL 46194.85 MEAN 127 MAX 7280 MIN .00 AC-FT 91630

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD

LOCATION.--Lat 44°36'10", long 101°29'24", in NE¼NW¼ sec.5, T.7 N., R.22 E., Ziebach County, Hydrologic Unit 10120112, on left bank 0.5 mi (0.8 km) east of village of Cherry Creek, 0.5 mi (0.8 km) downstream from Cherry Creek and 1.7 mi (2.7 km) upstream from Plum Creek.

DRAINAGE AREA.--23,900 mi^2 (61,900 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1960 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,699.29 ft (517.944 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 17, 1960, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Angostura Reservoir 197 mi (317 km) upstream (see station 06401000) since October 1949 and upstream reservoirs on Rapid Creek since 1956 and Belle Fourche River since 1952. Flow also affected by diversions for irrigation of about 70,000 acres (283 km^2) and return flow from irrigated areas. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--18 years, 875 ft^3/s (24.78 m^3/s), 633,900 acre-ft/yr (782 hm^3/yr); median of yearly mean discharges, 740 ft^3/s (21.0 m^3/s), 536,000 acre-ft/yr (660 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,800 ft^3/s (1,240 m^3/s) June 16, 1967, gage height, 14.75 ft (4.496 m); no flow Jan. 6 to Feb. 2, 1962.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,800 ft^3/s (844 m^3/s) Mar. 21, gage height, 12.51 ft (3.813 m); minimum daily, 50 ft^3/s (1.42 m^3/s) Dec. 14.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Mar. 24 to May 7; stage-discharge relation affected by ice Nov. 21 to Mar. 12)

1.4	106	3.0	890	7.0	7,000
1.5	128	4.0	1,820	9.0	12,900
2.0	286	5.0	3,120	11.0	21,000
2.5	535	6.0	4,800	13.0	32,700

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	971	171	90	100	90	95	4240	2570	5750	574	860	635
2	2220	171	95	100	90	95	3810	2480	4380	443	815	600
3	3360	168	95	100	95	95	3200	1770	3950	443	755	561
4	2040	166	100	100	95	95	2880	1460	4130	548	1140	523
5	1200	163	100	100	95	95	2520	1210	4060	567	1380	493
6	837	157	100	105	95	95	2110	2000	3580	607	1050	475
7	719	151	95	105	95	100	1820	3610	3390	747	815	459
8	600	202	90	105	95	100	1500	6950	3190	866	726	448
9	453	205	80	100	100	100	1100	9760	3120	1170	607	426
10	541	211	70	100	100	110	900	9730	2880	1930	554	421
11	670	267	65	100	100	500	700	7550	2800	1280	505	387
12	656	248	60	100	100	1500	621	5990	2560	1030	470	363
13	777	267	55	100	100	8480	561	6590	2180	747	432	406
14	580	294	50	100	100	8220	529	7290	1640	656	387	416
15	426	282	60	100	105	8000	529	5100	1400	535	963	421
16	349	271	70	95	105	7340	561	4460	1120	401	574	406
17	306	245	100	95	105	6470	554	3630	1000	996	1040	421
18	275	221	150	95	100	8440	875	3200	914	549	1100	440
19	256	211	180	95	95	15100	1060	3080	914	377	845	420
20	245	121	200	95	95	20800	1810	3600	994	392	740	400
21	231	100	215	100	95	28400	2430	6940	845	851	677	450
22	224	80	200	100	95	27900	2230	14200	860	845	663	480
23	217	60	180	100	100	22700	2660	20900	867	3370	635	450
24	214	55	170	100	100	17800	3090	10100	770	1960	649	420
25	205	55	170	100	100	11800	2650	6380	698	1440	535	400
26	205	60	150	95	100	8910	1370	5410	621	1190	517	370
27	211	65	140	95	100	8110	994	5340	574	1030	535	336
28	205	70	140	95	95	7630	885	9750	541	890	1110	323
29	205	75	130	95	---	6910	1330	6320	499	1290	1020	319
30	189	80	120	95	---	5920	1620	4860	535	1260	1120	311
31	177	---	110	95	---	5080	---	5770	---	1000	792	---
TOTAL	19764	4892	3630	3060	2740	236990	51139	188000	60762	29984	24011	12980
MEAN	638	163	117	98.7	97.9	7645	1705	6065	2025	967	775	433
MAX	3360	294	215	105	105	28400	4240	20900	5750	3370	1380	635
MIN	177	55	50	95	90	95	529	1210	499	377	387	311
AC-FT	39200	9700	7200	6070	5430	470100	101400	372900	120500	59470	47630	25750

CAL YR 1977 TOTAL 196420 MEAN 538 MAX 10200 MIN 35 AC-FT 389600
WTR YR 1978 TOTAL 637952 MEAN 1748 MAX 28400 MIN 50 AC-FT 1265000

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued
(National stream-quality accounting network station)
(National pesticide water-monitoring network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: January 1975 to September 1976.
WATER TEMPERATURES: January 1975 to September 1976, October 1977 to September 1978.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976 (discontinued).

INSTRUMENTATION.--Water-quality monitor since June 16, 1977. Monitor inoperative Nov. 24 to Dec. 20, Dec. 31 to Jan. 18, Apr. 5-26, May 2 to June 8, Sept. 5-11.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,400 micromhos Jan. 27, 28, 1975; minimum daily, 620 micromhos Apr. 25, 1975.
WATER TEMPERATURES: Maximum daily, 35.0°C Aug. 26, 1975; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 66,000 mg/L May 25, 1976; minimum daily mean, 80 mg/L Nov. 15-17, 1972.
SEDIMENT LOADS: Maximum daily, 2,530,000 tons (2,300,000 tonnes) June 12, 1972; minimum daily, 15 tons (14 tonnes) Dec. 14, 1973.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURES: Maximum daily, 25.5°C July 16; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 20...	1000	248	1850	8.9	9.0	150	--	11.2	70	110	770
NOV 28...	1130	69	3500	7.7	5.0	45	--	10.2	K10	70	1200
DEC 21...	1200	214	2420	8.1	.0	100	--	12.4	30	360	890
JAN 19...	1110	92	2900	7.5	.0	15	--	7.2	50	40	1200
FEB 22...	1040	94	2600	7.3	.0	10	--	7.2	70	30	1000
MAR 27...	1210	8150	615	7.7	5.0	2700	--	--	240	410	140
APR 27...	1030	990	730	8.0	14.0	850	--	8.6	220	1850	160
MAY 18...	0930	3180	1210	8.0	16.0	500	--	7.9	240	2680	490
JUN 08...	0915	3350	1140	8.3	19.0	--	480	7.1	125	530	420
JUL 11...	1030	1200	1080	8.2	21.5	--	1500	8.3	560	420	400
AUG 07...	1030	766	1760	8.3	27.0	--	95	7.6	170	500	630
SEP 12...	1400	421	1920	7.7	17.5	--	35	9.1	30	60	840

K Non-ideal colony count.

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
20...	600	180	77	190	35	3.0	12	200	1	170
NOV										
28...	900	280	110	320	37	4.1	16	310	0	250
DEC										
21...	660	220	82	210	34	3.1	12	280	0	230
JAN										
19...	900	290	110	1200	30	3.0	13	340	0	280
FEB										
22...	770	250	95	190	29	2.6	11	300	0	250
MAR										
27...	40	42	8.2	48	42	1.8	4.7	120	0	98
APR										
27...	58	46	12	89	53	3.0	5.5	130	0	110
MAY										
18...	360	130	40	95	29	1.9	8.0	160	0	130
JUN										
08...	180	110	35	100	34	2.1	8.5	--	--	240
JUL										
11...	300	100	36	92	33	2.0	8.3	--	--	100
AUG										
07...	510	160	56	160	35	2.8	11	--	--	120
SEP										
12...	720	200	82	160	29	2.4	12	140	--	110

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT										
20...	890	56	.5	10	1620	1520	2.20	1090	.96	--
NOV										
28...	1400	83	.6	10	2780	2380	3.24	518	1.7	--
DEC										
21...	930	82	.7	14	1880	1690	2.56	1090	2.6	--
JAN										
19...	1300	88	.6	13	2290	2220	3.11	569	--	--
FEB										
22...	1000	80	.6	12	1930	1790	2.62	490	2.0	.78
MAR										
27...	140	3.8	.2	4.2	310	310	.42	6820	.51	5.0
APR										
27...	240	6.8	.2	5.8	468	469	.64	1250	.30	2.9
MAY										
18...	490	24	.4	8.4	906	875	1.23	7780	.39	1.5
JUN										
08...	420	22	.5	7.1	823	847	1.12	7440	.21	1.4
JUL										
11...	450	23	.5	6.5	790	777	1.07	2560	.55	3.8
AUG										
07...	740	49	.5	7.7	1360	1260	1.85	2810	.12	.97
SEP										
12...	990	38	.5	8.3	1640	1560	2.12	1860	.23	.67

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OCT										
20...	--	.04	.95	--	--	--	--	--	.06	.26
NOV										
28...	--	.07	--	--	--	--	--	--	.04	.00
DEC										
21...	--	.21	--	--	--	--	--	--	.16	.31
JAN										
19...	--	.31	.18	--	--	--	--	--	.22	.25
FEB										
22...	.52	.26	.31	.47	--	--	2.8	12	.27	.30
MAR										
27...	4.8	.23	.55	4.5	--	--	5.5	24	.03	2.3
APR										
27...	2.8	.12	.56	2.3	--	--	3.2	14	.06	1.4
MAY										
18...	1.5	.01	.43	1.1	--	--	1.9	8.4	.01	1.0
JUN										
08...	1.4	.00	.31	1.1	--	--	1.6	7.1	.00	.73
JUL										
11...	3.8	.03	.42	3.4	--	--	4.4	19	.03	.01
AUG										
07...	.96	.01	.48	.49	--	--	1.1	4.8	.00	.14
SEP										
12...	.66	.01	.58	.09	--	--	.90	4.0	.00	.07

DATE	TIME	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT										
20...	1000	--	--	5.2	--	--	--	502	336	96
NOV										
28...	1130	--	--	3.8	190	--	--	512	77	89
DEC										
21...	1200	--	--	4.1	--	--	--	56	294	91
FEB										
22...	1040	--	--	2.4	--	--	--	--	--	--
MAR										
27...	1210	--	--	59	0	--	--	6470	142000	99
APR										
27...	1030	--	--	26	--	--	--	1860	4980	96
MAY										
18...	0930	--	--	18	890	--	--	1330	11400	98
JUN										
08...	0915	--	--	7.2	--	--	--	958	8670	96
AUG										
07...	1030	--	--	5.9	--	--	--	296	612	86
SEP										
12...	1400	--	--	6.1	--	--	--	219	249	91

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
OCT											
20...	50	0	10	6	4	14000	30	100	98	2	230
JAN											
19...	0	0	9	7	2	680	40	12	10	2	220
APR											
27...	16	1	50	46	4	44000	80	29	26	3	1100
JUL											
11...	2	2	110	110	3	65000	40	60	44	16	1700

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
OCT											
20...	180	50	.0	.0	.0	4	1	3	40	30	10
JAN											
19...	10	210	.4	.4	.0	6	1	5	--	20	10
APR											
27...	1100	0	.0	.0	.0	3	2	1	200	190	10
JUL											
11...	1700	0	.2	.2	.0	5	3	2	260	250	10

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
OCT											
20...	1000	80	56	24	<10	<10	0	10	0	20	50
JAN											
19...	1110	13	2	11	1	1	0	10	10	0	0
APR											
27...	1030	12	11	1	1	1	0	40	40	0	17
JUL											
11...	1030	110	96	14	1	0	1	60	60	0	4

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
SEP						
12...	1300	406	19.0	9.1	1770	7.6
12...	1350	406	19.0	9.1	--	--
12...	1450	401	19.5	8.7	--	--
12...	1650	377	20.0	8.7	--	--
12...	1850	377	19.0	9.1	--	--
12...	2050	377	18.0	9.2	--	--
12...	2250	377	17.0	9.1	--	--
13...	0150	396	17.0	8.8	--	--
13...	0350	396	17.0	8.4	--	--
13...	0550	411	16.0	8.8	--	--
13...	0750	416	15.0	9.1	--	--
13...	0950	416	15.0	9.3	1800	8.2
13...	1150	416	16.0	9.5	--	--
13...	1350	411	19.0	9.3	1950	8.4

< Less than.

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	1480	1400	2500	2480	---	---	---	---	2940	2940	2570	2540
2	1450	1380	2540	2510	---	---	---	---	2940	2920	2580	2570
3	1450	1340	2580	2550	---	---	---	---	2940	2930	2600	2570
4	1440	1320	2630	2580	---	---	---	---	2940	2930	2610	2570
5	1540	1410	2650	2630	---	---	---	---	2940	2920	2600	2580
6	1430	1410	2690	2670	---	---	---	---	2930	2920	2590	2580
7	1470	1410	2710	2700	---	---	---	---	2920	2920	2590	2580
8	1510	1480	2730	2670	---	---	---	---	2920	2910	2590	2580
9	1510	1480	2710	2680	---	---	---	---	2920	2910	2600	2550
10	1560	1520	2730	2700	---	---	---	---	2910	2910	2510	2280
11	1570	1550	2750	2730	---	---	---	---	2910	2900	2240	1960
12	1690	1560	2760	2720	---	---	---	---	2880	2870	2030	1890
13	1710	1680	2750	2720	---	---	---	---	2850	2840	1960	1850
14	1700	1660	2750	2730	---	---	---	---	2820	2810	1810	1740
15	1660	1650	2760	2710	---	---	---	---	2790	2780	1690	1560
16	1670	1650	2720	2690	---	---	---	---	2760	2750	1510	1440
17	1720	1670	2720	2700	---	---	---	---	2730	2700	1390	1350
18	1780	1730	2730	2710	---	---	---	---	2710	2680	1310	1270
19	1840	1780	2750	2730	---	---	2940	2940	2680	2670	1230	1180
20	1910	1860	2780	2760	---	---	2940	2930	2660	2640	1140	1090
21	1970	1930	2850	2800	2400	2350	2940	2920	2630	2610	1050	1000
22	2030	1990	2910	2870	2390	2350	2940	2940	2600	1940	966	935
23	2100	2060	2950	2930	2390	2380	2940	2940	2590	2580	891	871
24	2150	2120	---	---	2430	2430	2940	2940	2580	2550	827	794
25	2210	2180	---	---	2480	2450	2940	2940	2560	2550	751	728
26	2270	2230	---	---	2560	2520	2940	2940	2560	2540	685	669
27	2310	2280	---	---	2610	2590	2940	2940	2560	2540	628	614
28	2350	2330	---	---	2650	2630	2940	2940	2570	2540	619	610
29	2400	2380	---	---	2970	2600	2950	2930	---	---	624	615
30	2440	2420	---	---	2930	2730	2950	2940	---	---	638	620
31	2470	2450	---	---	---	---	2940	2930	---	---	641	632
MONTH	2470	1320	2950	2480	2970	2350	2950	2920	2940	1940	2610	610

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	649	642	1680	1090	---	---	1510	1480	1510	1460	1630	1600
2	954	654	---	---	---	---	1510	1470	1540	1510	1620	1580
3	963	959	---	---	---	---	1490	1460	1610	1530	1620	1570
4	971	737	---	---	---	---	1480	1450	1650	1590	1720	1550
5	---	---	---	---	---	---	1460	1430	1700	1650	---	---
6	---	---	---	---	---	---	1430	1400	1750	1690	---	---
7	---	---	---	---	---	---	1400	1380	1780	1740	---	---
8	---	---	---	---	---	---	1390	1370	1780	1720	---	---
9	---	---	---	---	1230	1210	1370	1350	1800	1720	---	---
10	---	---	---	---	1210	1200	1360	1330	1830	1730	---	---
11	---	---	---	---	1190	1170	1320	923	1840	1750	---	---
12	---	---	---	---	1190	1150	1450	1090	1860	1780	1980	1880
13	---	---	---	---	1210	1160	1510	1440	1820	1680	1930	1900
14	---	---	---	---	1260	1190	1520	1440	1620	1280	1960	1900
15	---	---	---	---	1300	1220	1490	1400	1810	1280	2000	1920
16	---	---	---	---	1320	1260	1570	1440	1760	1670	2160	1700
17	---	---	---	---	1340	1290	1520	1290	1730	1690	2030	2000
18	---	---	---	---	1390	1300	1420	1260	1670	1610	2100	2040
19	---	---	---	---	1390	1350	1580	1440	1600	1560	2140	2100
20	---	---	---	---	1420	1360	1590	1520	1600	1540	2230	2150
21	---	---	---	---	1420	1370	1580	1370	1600	1540	2430	2240
22	---	---	---	---	1430	1390	1430	1360	1560	1530	2630	2440
23	---	---	---	---	1460	1410	1450	1260	1570	1510	2760	2640
24	---	---	---	---	1490	1440	1360	1270	1590	1520	2830	2750
25	---	---	---	---	1510	1470	1400	1370	1640	1530	2870	2810
26	---	---	---	---	1500	1470	1430	1390	1710	1570	2880	2830
27	881	745	---	---	1510	1450	1440	1400	1780	1610	2860	1940
28	1580	952	---	---	1520	1480	1420	1400	1700	1680	2350	1810
29	1790	1130	---	---	1530	1490	1480	1400	1700	1650	1920	1620
30	1560	1100	---	---	1510	1480	1470	1430	1670	1630	2210	1480
31	---	---	---	---	---	---	1490	1440	1660	1610	---	---
MONTH	1790	642	1680	1090	1530	1150	1590	923	1860	1280	2880	1480

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
1	11.0	10.0	9.5	5.5	.0	.0	.0	.0	.0	.0	.0	.0
2	13.5	9.5	10.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0
3	14.0	10.0	10.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0
4	14.0	12.0	10.5	4.5	.0	.0	.0	.0	.0	.0	.0	.0
5	14.0	10.0	12.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0
6	11.0	9.5	12.5	6.5	.0	.0	.0	.0	.0	.0	.0	.0
7	10.0	8.0	12.5	8.5	.0	.0	.0	.0	.0	.0	.0	.0
8	10.5	7.0	10.5	2.0	.0	.0	.0	.0	.0	.0	.0	.0
9	11.0	7.0	3.5	.0	.0	.0	.0	.0	.0	.0	.0	.0
10	9.5	6.0	4.0	.0	.0	.0	.0	.0	.0	.0	.0	.0
11	8.5	4.5	5.0	1.0	.0	.0	.0	.0	.0	.0	.0	.0
12	10.0	4.5	4.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
13	12.5	7.0	4.5	.5	.0	.0	.0	.0	.0	.0	.0	.0
14	11.0	8.5	6.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0
15	11.0	6.0	6.0	3.0	.0	.0	.0	.0	.0	.0	.0	.0
16	13.0	6.5	4.0	2.0	.0	.0	.0	.0	.0	.0	.0	.0
17	13.0	8.0	2.5	.0	.0	.0	.0	.0	.0	.0	1.0	.0
18	13.5	7.5	2.0	.0	.0	.0	.0	.0	.0	.0	1.5	.0
19	14.5	8.0	1.0	.0	.0	.0	.0	.0	.0	.0	2.0	.0
20	14.5	10.5	.5	.0	.0	.0	.0	.0	.0	.0	2.5	.5
21	11.5	10.0	.5	.0	.0	.0	.0	.0	.0	.0	3.0	.0
22	12.5	9.0	.5	.0	.0	.0	.0	.0	.0	.0	3.0	1.5
23	12.0	7.5	.5	.0	.0	.0	.0	.0	.0	.0	2.0	1.5
24	13.5	9.5	---	---	.0	.0	.0	.0	.0	.0	2.5	1.0
25	14.5	7.5	.0	.0	.0	.0	.0	.0	.0	.0	4.5	1.5
26	14.5	9.0	.0	.0	.0	.0	.0	.0	.0	.0	4.5	2.5
27	14.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	6.0	4.0
28	14.0	8.5	.0	.0	.0	.0	.0	.0	.0	.0	6.0	4.5
29	14.0	9.5	.0	.0	.0	.0	.0	.0	---	---	5.0	4.5
30	14.0	10.0	.0	.0	.0	.0	.0	.0	---	---	5.0	4.5
31	10.5	6.5	---	---	.0	.0	.0	.0	---	---	5.0	4.5
MONTH	14.5	4.5	12.5	.0	.0	.0	.0	.0	.0	.0	6.0	.0
	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
1	5.5	5.0	16.0	7.5	---	---	28.5	24.5	28.0	23.0	24.5	21.0
2	5.5	---	---	---	---	---	29.5	25.0	24.0	20.0	26.5	22.5
3	---	---	---	---	---	---	28.5	24.0	26.5	17.5	28.0	22.5
4	5.5	---	---	---	---	---	29.5	24.5	25.5	19.0	---	---
5	---	---	---	---	---	---	28.5	24.5	27.0	20.0	---	---
6	---	---	---	---	---	---	26.0	23.0	29.0	21.5	---	---
7	---	---	---	---	---	---	24.0	22.5	29.0	23.5	---	---
8	---	---	---	---	---	---	24.5	23.5	30.0	23.5	---	---
9	---	---	---	---	24.0	21.5	24.5	23.0	31.0	22.0	---	---
10	---	---	---	---	23.5	21.5	23.5	22.0	31.5	23.0	---	---
11	---	---	---	---	21.5	20.0	27.5	21.0	31.0	21.5	---	---
12	---	---	---	---	23.0	18.0	28.0	23.5	34.0	24.0	21.5	14.0
13	---	---	---	---	25.0	19.5	28.5	22.0	32.5	25.0	22.0	14.5
14	---	---	---	---	27.5	21.5	31.5	24.0	31.0	23.5	21.0	13.5
15	---	---	---	---	29.0	23.0	34.5	23.5	23.5	19.5	23.5	14.5
16	---	---	---	---	27.5	23.5	34.5	25.5	31.0	18.0	19.5	14.5
17	---	---	---	---	23.5	20.5	29.0	24.5	27.0	21.5	14.5	13.5
18	---	---	---	---	26.0	18.5	32.0	23.5	22.0	18.5	16.5	13.0
19	---	---	---	---	25.0	20.5	28.0	22.0	22.5	17.0	15.5	11.0
20	---	---	---	---	24.0	18.5	23.5	19.5	26.0	18.0	17.5	11.0
21	---	---	---	---	24.0	18.5	21.0	19.5	27.5	20.5	19.0	11.0
22	---	---	---	---	27.0	20.5	25.0	19.0	23.5	21.0	19.5	11.0
23	---	---	---	---	27.5	23.0	24.0	21.0	25.5	21.0	20.5	12.5
24	---	---	---	---	28.5	24.0	28.5	22.0	29.0	22.5	21.0	14.0
25	---	---	---	---	28.0	24.0	28.5	25.0	32.0	22.5	21.5	15.0
26	---	---	---	---	25.5	22.5	30.5	24.5	36.5	22.5	21.5	15.5
27	15.0	1.5	---	---	26.5	21.0	29.5	24.5	35.5	19.5	17.5	15.5
28	13.5	2.0	---	---	26.0	23.0	30.0	24.5	34.5	21.0	15.5	13.5
29	17.5	7.0	---	---	26.5	25.0	27.0	24.0	25.0	19.0	13.5	12.0
30	16.0	6.5	---	---	28.0	24.0	27.5	22.5	24.5	19.5	12.5	11.0
31	---	---	---	---	---	---	28.0	23.0	25.5	20.0	---	---
MONTH	17.5	1.5	16.0	7.5	29.0	18.0	34.5	19.0	36.5	17.0	28.0	11.0
YEAR	36.5	.0										

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	AUG 25,77	NOV 28,77	MAR 27,78	MAY 18,78	JUN 8,78	JUL 11,78
TIME	1000	1130	1210	0930	0915	1030
TOTAL CELLS/ML	13000	190	0	890	130	830
DIVERSITY: DIVISION	1.5	0.0	0.0	1.6	0.7	1.0
.CLASS	1.6	0.0	0.0	1.6	0.7	1.0
..ORDER	2.1	1.0	0.0	2.1	1.3	1.4
...FAMILY	2.8	1.5	0.0	3.0	1.3	1.9
....GENUS	3.4	1.5	0.0	3.2	1.3	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...CHARACIACEAE												
....SCHROEDERIA	*	0	--	-	--	-	--	-	--	-	--	-
...COELASTRACEAE												
....COELASTRUM	300	2	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	1600	13	--	-	--	-	43	5	--	-	93	11
....CHODATELLA	75	1	--	-	--	-	--	-	--	-	--	-
....CLOSTERIOPSIS	75	1	--	-	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	300	2	--	-	--	-	--	-	--	-	370#	44
....KIRCHNERIELLA	150	1	--	-	--	-	--	-	--	-	--	-
....OOCYSTIS	*	0	--	-	--	-	--	-	--	-	--	-
...SCENEDESMACEAE												
....ACTINASTRUM	2100#	16	--	-	--	-	--	-	--	-	--	-
....SCENEDESMUS	2100#	16	--	-	--	-	170#	19	89#	67	93	11
..VOLVOCALES												
...CHLAMYDOMONADACEAE												
....CHLAMYDOMONAS	300	2	--	-	--	-	29	3	22#	17	93	11
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	1700	13	--	-	--	-	71	8	--	-	93	11
....MELOSIRA	*	0	94#	50	--	-	57	6	--	-	--	-
..PENNALES												
...DIATOMACEAE												
....DIATOMA	--	-	--	-	--	-	14	2	--	-	--	-
...FRAGILARIACEAE												
....FRAGILARIA	--	-	--	-	--	-	29	3	--	-	--	-
....SYNEDRA	--	-	--	-	--	-	29	3	--	-	--	-
...GOMPHONEMATACEAE												
....GOMPHONEMA	75	1	--	-	--	-	14	2	--	-	--	-
...NAVICULACEAE												
....GYROSIGMA	--	-	--	-	--	-	*	0	--	-	--	-
....NAVICULA	220	2	--	-	--	-	14	2	--	-	--	-
...NITZSCHIACEAE												
....NITZSCHIA	2200#	17	47#	25	--	-	130	15	--	-	--	-
...SURIRELLACEAE												
....SURIRELLA	--	-	47#	25	--	-	--	-	22#	17	--	-

06439300 CHEYENNE RIVER AT CHERRY CREEK, SD--Continued

PHYTOPLANKTON ANALYSES

DATE TIME	AUG 25,77 1000	NOV 28,77 1130	MAR 27,78 1210	MAY 18,78 0930	JUN 8,78 0915	JUL 11,78 1030
TOTAL CELLS/ML	13000	190	0	890	130	830
DIVERSITY: DIVISION	1.5	0.0	0.0	1.6	0.7	1.0
.CLASS	1.6	0.0	0.0	1.6	0.7	1.0
..ORDER	2.1	1.0	0.0	2.1	1.3	1.4
...FAMILY	2.8	1.5	0.0	3.0	1.3	1.9
....GENUS	3.4	1.5	0.0	3.2	1.3	2.3

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
.CHRYSOPHYCEAE												
..CHRYSOMONADALES												
...OCHROMONADACEAE												
....DINOBRYON	150	1	--	-	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..CHROCOCCALES												
...CHROCOCCACEAE												
....ANACYSTIS	300	2	--	-	--	-	--	-	--	-	--	-
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	110	13	--	-	--	-
...OSCILLATORIACEAE												
....LYNGBYA	150	1	--	-	--	-	--	-	--	-	--	-
....OSCILLATORIA	970	7	--	-	--	-	170#	19	--	-	--	-
..CHROCOCCALES												
...CHROCOCCACEAE												
....GOMPHOSPHAERIA	*	0	--	-	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	150	1	--	-	--	-	--	-	--	-	--	-
.EUGLENOPHYCEAE												
..EUGLENALES												
...EUGLENACEAE												
....EUGLENA	75	1	--	-	--	-	--	-	--	-	93	11
....TRACHELOMONAS	75	1	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06439500 CHEYENNE RIVER NEAR EAGLE BUTTE, SD

LOCATION.--Lat 44°41'44", long 101°13'08", in NE¼SE¼ sec.32, T.9 N., R.24 E., Haakon County, Hydrologic Unit 10120112, at discontinued gaging station on downstream side near center of bridge on State Highway 63, 0.5 mi (0.8 km) upstream from Hermaphrodite Creek and 21 mi (33.8 km) south of Eagle Butte.

DRAINAGE AREA.--24,500 mi^2 (63,500 km^2), approximately.

PERIOD OF RECORD.--Water years 1972 to current year.

REMARKS.--Station is affected by backwater from Oahe Dam; discharge records not available.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT 20...	1110	--	1880	8.8	9.5	700	540	170	67	180
NOV 28...	1300	--	3500	7.7	5.0	1200	900	280	110	320
DEC 21...	1330	--	3000	7.9	.0	1200	970	300	120	260
JAN 19...	1300	--	2900	7.5	.0	1200	940	290	120	240
FEB 22...	1315	--	2500	7.4	.0	1000	760	250	92	200
MAR 27...	1330	--	625	7.7	5.0	220	140	60	17	73
APR 27...	1130	--	1570	8.3	14.0	440	300	110	40	160
MAY 18...	1200	--	1200	8.0	16.0	490	370	130	41	89
JUN 08...	1200	--	1140	8.4	19.0	420	280	110	36	95
JUL 11...	1200	--	1130	8.2	24.5	440	370	110	41	75
AUG 07...	1130	--	1710	8.4	27.0	650	540	160	62	160

06439500 CHEYENNE RIVER NEAR EAGLE BUTTE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)
OCT 20...	35	3.0	12	190	1	160	860	50	.5
NOV 28...	37	4.1	16	310	0	250	1400	83	.6
DEC 21...	31	3.2	16	330	0	270	1400	100	.7
JAN 19...	30	3.0	13	340	0	280	1300	88	.6
FEB 22...	30	2.7	11	300	0	246	990	83	.6
MAR 27...	41	2.1	5.9	9	0	75	280	7.6	.2
APR 27...	44	3.3	7.7	170	0	140	590	20	.2
MAY 18...	28	1.7	8.4	150	0	120	500	27	.5
JUN 08...	32	2.0	8.1	170	2	140	440	24	.5
JUL 11...	26	1.6	8.6	90	0	74	490	19	.6
AUG 07...	34	2.7	11	140	0	110	790	50	.6

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT 20...	10	1450	1.97	--	.92	.31	.05	.04	280
NOV 28...	10	2380	3.24	--	1.3	.00	.04	.03	390
DEC 21...	13	2390	3.25	--	3.2	.41	.18	.14	380
JAN 19...	13	2250	3.06	--	2.7	.23	.21	.22	330
FEB 22...	12	1800	2.45	--	2.0	.28	.24	.18	330
MAR 27...	5.2	497	.68	--	.60	2.3	.02	.00	100
APR 27...	7.4	1020	1.39	--	.68	1.6	.02	.01	190
MAY 18...	8.8	881	1.20	--	.44	1.2	.00	.00	140
JUN 08...	7.3	808	1.10	--	.21	--	.00	.01	150
JUL 11...	6.5	798	1.09	--	.64	.95	.03	.03	200
AUG 07...	7.6	1310	1.78	--	.06	.12	.00	.00	240

06439980 LAKE OAHE NEAR PIERRE, SD

LOCATION.--Lat 44°27'30", long 100°23'29", in NE¼ sec.1, T.111 N., R.80 W., 5th principal meridian, Hughes County, Hydrologic Unit 10130105, in Pier A of Control Tower No. 1 of powerhouse intake structure of dam on Missouri River, 6.0 mi (9.7 km) northwest of Pierre, 7.1 mi (11.4 km) upstream from Bad River, and at mile 1,072.3 (1,725.3 km).

DRAINAGE AREA.--243,500 mi^2 (630,700 km^2), approximately.

PERIOD OF RECORD.--August 1958 to current year (monthend contents only). Prior to October 1967, published as Oahe Reservoir near Pierre.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Jan. 14, 1959, nonrecording gages at various locations upstream from outlet works, Jan. 14, 1959, to Sept. 30, 1962, recorder in Tower No. 1 of outlet works, all at same datum.

REMARKS.--Reservoir is formed by an earthfill dam; storage began in August 1958. Maximum capacity, 23,630,000 acre-ft (29,100 hm^3) below elevation 1,620.0 ft (493.78 m), top of spillway gates. Normal maximum, 22,530,000 acre-ft (27,800 hm^3) below 1,617.0 ft (492.86 m), of which about 2,390,000 acre-ft (2,950 hm^3) is designated for flood control. Inactive storage, 5,538,000 acre-ft (6,830 hm^3) below elevation 1,540.0 ft (469.39 m). Dead storage, 2,000 acre-ft (2.47 hm^3) below elevation 1,425.0 ft (434.34 m), invert of lowest outlet tunnel. Figures given herein represent elevations at powerhouse intake structure and total contents adjusted for wind effect.

The spillway consists of a gated chute with flat crest at elevation 1,596.5 ft (486.61 m), 8 gates, 50 by 23.5 ft (15.2 X 7.2 m) each; design capacity, 300,000 ft^3/s (8,500 m^3/s). The outlet works consist of 7 turbines with a generating capacity of 85,000 kilowatts each. Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 22,681,000 acre-ft (28,000 hm^3) Aug. 22, 1975, elevation, 1,617.9 ft (493.14 m), affected by wind; minimum since initial filling, 16,131,000 acre-ft (19,900 hm^3) Sept. 30, 1977, elevation, 1,596.9 ft (486.74 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 21,969,000 acre-ft (27,100 hm^3) May 31, elevation, 1,615.7 ft (492.47 m); maximum elevation, 1,615.9 ft (492.53 m) June 6, 19, July 9; minimum contents, 15,112,000 acre-ft (18,600 hm^3) Dec. 10, 12-14, elevation, 1,593.0 ft (485.55 m), affected by ice.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	1596.9	16131000	
Oct. 31	1595.4	15768000	-363000
Nov. 30	1594.5	15431000	-337000
Dec. 31	1594.8	15560000	+129000
CAL YR 1977			-2550000
Jan. 31	1596.9	16128000	+568000
Feb. 28	1600.7	17211000	+1083000
Mar. 31	1610.3	20126000	+2915000
Apr. 30	1614.7	21621000	+1495000
May 31	1615.7	21969000	+348000
June 30	1615.4	21833000	-136000
July 31	1615.0	21755000	-78000
Aug. 31	1613.4	21239000	-516000
Sept. 30	1610.4	20208000	-1031000
WTR YR 1978			+4077000

NOTE.--Reservoir frozen over Jan. 3 to Apr. 7.

06440000 MISSOURI RIVER AT PIERRE, SD
(National stream-quality accounting network station)

LOCATION.--Lat 44°22'25", long 100°22'20", in SE¼ sec.21, T.5 N., R.31 E., Hughes County, Hydrologic Unit 10140102, at discontinued gaging station, near right bank on downstream side of pier of Chicago and North Western Transportation Company bridge, 1.3 mi (2.1 km) upstream from Bad River, 5.8 mi (9.3 km) downstream from Oahe Dam, and at mile 1,006.5 (1,716 km).

DRAINAGE AREA.--243,500 mi² (630,700 km²), approximately.

PERIOD OF RECORD.--Water years 1971 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: July 1971 to current year.
WATER TEMPERATURES: July 1971 to current year.

COOPERATION.--Flow completely regulated by Lake Oahe (station 06439980) 5.8 mi (9.3 km) upstream. Discharge furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 850 micromhos Dec. 2, 1974; minimum daily, 530 micromhos Dec. 24, 1974.
WATER TEMPERATURES: Maximum daily, 24.0°C July 31, Aug. 3, 1977; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 830 micromhos Feb. 12; minimum daily, 620 micromhos Aug. 22.
WATER TEMPERATURES: Maximum daily, 20.0°C July 22, Aug. 11; minimum daily, 0.0°C on many days during winter period.

REVISIONS.--Water samples for the following dates have been found in error and should not be used.

Nov. 20, 1973
Dec. 19, 1973
Jan. 10, 1974
Mar. 7, 1974
Apr. 10, 1974
May 10, 1974
July 11, 1974
Aug. 8, 1974
Sept. 6, 1974
Nov. 4, 1974
Dec. 23, 1974
Jan. 22, 1975
Feb. 26, 1975
Mar. 18, 1975
Apr. 16, 1975
May 28, 1975

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT											
03...	1400	30600	720	8.5	15.5	10	--	--	K5	40	230
19...	1315	26700	710	8.9	14.0	--	--	--	--	--	230
31...	1400	41000	730	8.9	12.5	6	--	10.0	K3	35	240
NOV											
30...	1400	19000	720	8.0	7.0	3	--	10.6	ND	9	230
JAN											
03...	1330	12200	770	8.2	.0	1	--	12.0	K3	K2	240
19...	1530	14800	755	8.0	.0	1	--	10.0	K1	20	240
FEB											
22...	1500	21600	740	8.0	1.5	1	--	13.0	--	--	240
MAR											
21...	1330	450	760	8.1	5.5	35	--	7.5	11	36	240
APR											
28...	1330	25000	770	8.4	6.0	3	--	10.2	K1	K8	240
MAY											
19...	1330	38700	730	8.6	9.0	2	--	10.0	15	40	240
JUN											
12...	1400	43800	730	8.7	17.0	1	--	10.6	10	15	240
JUL											
13...	1530	51600	735	8.4	19.0	--	2.1	9.0	K12	30	250
AUG											
11...	1320	54400	740	8.4	20.0	--	1.0	6.6	10	30	240
SEP											
15...	1100	53500	700	8.1	20.0	--	1.7	8.5	K3	K5	210

K Non-ideal colony count.
ND Not detected.

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
03...	70	56	22	62	36	1.8	4.3	190	3	160
19...	65	53	23	61	36	1.8	4.4	190	4	160
31...	78	57	23	65	37	1.8	4.4	190	2	160
NOV										
30...	77	57	22	72	40	2.1	4.7	190	0	160
JAN										
03...	94	57	24	68	37	1.9	4.6	180	0	150
19...	75	58	23	68	38	1.9	4.6	200	0	160
FEB										
22...	97	60	23	66	37	1.8	4.3	180	0	150
MAR										
21...	84	58	23	69	38	1.9	4.7	190	0	160
APR										
28...	78	58	24	68	37	1.9	4.7	200	1	170
MAY										
19...	81	59	23	70	38	2.0	5.0	190	3	160
JUN										
12...	83	58	22	70	39	2.0	5.0	180	3	150
JUL										
13...	--	61	23	69	37	1.9	4.7	--	--	150
AUG										
11...	--	62	21	65	36	1.8	4.7	--	--	150
SEP										
15...	--	54	19	60	37	1.8	4.6	--	--	140

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)
OCT										
03...	190	14	.5	7.4	453	453	.62	37400	.07	--
19...	200	10	.6	7.5	--	458	.62	33000	--	.10
31...	190	9.6	.5	7.2	448	452	.61	49600	.03	--
NOV										
30...	200	9.5	.5	7.7	451	467	.61	23100	.15	--
JAN										
03...	210	9.9	.5	7.6	472	471	.64	15500	.12	.13
19...	190	9.9	.6	7.7	481	461	.65	19200	.15	.17
FEB										
22...	200	10	.6	7.6	471	461	.64	27500	.14	.13
MAR										
21...	210	9.8	.6	7.5	463	477	.63	563	.22	.21
APR										
28...	210	10	.6	7.4	470	483	.64	31700	.37	.15
MAY										
19...	210	10	.5	7.2	515	482	.70	53800	.08	.11
JUN										
12...	200	9.5	.5	7.5	459	465	.62	54300	.12	.14
JUL										
13...	230	12	.6	7.3	482	--	.66	67200	.15	.24
AUG										
11...	220	9.7	.6	6.7	463	--	.63	68000	.18	.20
SEP										
15...	200	9.5	.5	6.7	449	--	.61	64900	.17	.21

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	BORON, DIS-SOLVED (UG/L AS B) (01020)
OCT										
03...	--	--	.00	--	--	--	--	.00	.02	--
19...	--	--	--	--	--	--	--	.02	.01	110
31...	--	--	.00	.15	--	--	--	.00	.01	--
NOV										
30...	--	--	.01	--	--	--	--	.02	.02	130
JAN										
03...	--	--	.10	.17	--	--	--	.01	.00	120
19...	--	--	.08	.49	--	--	--	.01	.02	120
FEB										
22...	.12	.11	.01	.11	.01	.26	1.2	.01	.01	120
MAR										
21...	.62	.58	.04	.34	.28	.84	3.7	.02	.03	130
APR										
28...	.54	.53	.01	.41	.13	.91	4.0	.01	.02	130
MAY										
19...	.55	.55	.00	.34	.21	.63	2.8	.00	.01	120
JUN										
12...	.37	.36	.01	.37	.00	.49	2.2	.00	.01	140
JUL										
13...	.33	.30	.03	.17	.16	.48	2.1	.01	.00	130
AUG										
11...	.28	.28	.00	.22	.06	.46	2.0	.00	.01	120
SEP										
15...	.25	.23	.02	.26	.00	.42	1.9	.00	.01	110

DATE	TIME	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT						
31...	1400	2.5	--	32	3540	9
NOV						
30...	1400	2.7	160	25	1280	92
JAN						
03...	1330	2.8	--	--	--	--
FEB						
22...	1500	3.5	--	--	--	--
MAR						
21...	1330	4.6	27	--	--	--
MAY						
19...	1330	2.8	890	38	3970	96
JUN						
12...	1400	2.6	230	31	3670	94
AUG						
11...	1320	3.5	--	--	--	--

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 30...	1400	3	0	3	0	0	0	10	10	0	0
JAN 19...	1530	2	0	3	0	0	1	20	10	10	0
APR 28...	1330	3	2	1	0	0	0	0	0	0	1
JUL 13...	1530	3	0	3	9	3	6	10	10	0	2

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV 30...	0	0	4	3	1	160	10	7	0	8	30
JAN 19...	0	0	6	3	3	90	30	3	2	1	10
APR 28...	1	0	3	3	0	260	40	5	0	5	20
JUL 13...	1	1	6	4	2	120	20	34	19	15	40

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 30...	20	10	.0	.0	.0	1	0	2	10	4	6
JAN 19...	10	0	.0	.0	.0	1	0	1	10	10	0
APR 28...	20	0	.0	.0	.0	1	0	1	10	0	10
JUL 13...	20	20	.1	.0	.1	1	0	1	10	0	10

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
SEP 15...	1010	53300	20.5	8.6	700	--
15...	1100	53500	20.0	8.5	700	8.1
15...	1110	53600	20.5	8.5	--	--
15...	1210	53800	20.5	8.6	--	--
15...	1410	53800	20.5	8.6	--	--
15...	1610	53600	21.0	8.5	--	--
15...	1810	53400	21.0	8.4	--	--
15...	2010	53400	20.5	8.5	--	--
15...	2210	53300	20.5	8.6	--	--
15...	2400	52700	20.5	8.6	--	--
16...	0210	53600	20.0	8.7	--	--
16...	0410	53300	20.0	8.8	--	--
16...	0610	53100	19.5	8.9	--	--
16...	0810	53100	19.5	8.9	--	--
16...	1000	53600	20.0	8.7	--	--

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	690	700	700	760	800	740	740	730	720	730	730	700
2	690	700	700	770	750	750	740	720	730	740	730	690
3	690	700	700	730	750	740	740	720	730	730	740	690
4	690	700	700	750	740	750	740	720	720	730	740	690
5	690	700	700	740	750	750	740	730	720	730	740	690
6	690	700	700	750	740	740	740	720	720	740	730	700
7	690	700	700	750	740	740	730	720	720	740	730	700
8	700	700	700	740	740	740	730	720	720	730	730	700
9	690	700	700	760	740	750	730	730	730	730	730	700
10	690	700	700	740	820	740	730	720	730	730	730	690
11	690	700	700	740	750	740	730	720	720	730	720	700
12	690	700	700	740	830	740	740	720	730	730	720	700
13	690	700	700	770	810	740	740	720	730	730	720	690
14	690	700	700	760	750	730	740	730	730	730	720	690
15	690	700	700	750	740	740	730	720	730	730	710	690
16	690	700	710	760	740	730	730	720	730	740	700	690
17	700	700	730	740	740	740	730	720	730	730	710	690
18	690	700	710	740	740	740	740	720	730	730	700	700
19	690	700	710	740	740	690	740	720	730	720	700	690
20	700	700	700	740	750	750	740	730	730	740	700	690
21	690	700	700	740	740	750	730	730	730	730	700	690
22	700	700	700	750	740	740	740	720	740	730	620	700
23	700	700	710	740	740	750	750	720	740	730	700	700
24	700	710	710	730	740	740	740	720	740	740	700	700
25	700	710	790	750	740	740	740	720	740	730	700	700
26	690	710	790	740	750	740	740	720	750	730	700	700
27	700	710	700	740	740	740	740	720	750	730	700	700
28	700	710	700	750	740	740	730	720	750	730	700	700
29	690	700	710	760	---	740	730	730	750	730	690	690
30	700	700	740	740	---	730	740	720	750	720	690	690
31	700	---	720	730	---	740	---	710	---	---	700	---
MEAN	694	702	711	746	753	740	737	722	732	731	711	695

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.5	12.0	3.0	.0	.0	.0	4.5	7.0	11.0	18.0	19.0	18.0
2	16.0	12.5	5.0	.0	.0	.0	5.0	6.5	11.0	18.0	19.0	19.0
3	16.5	12.0	4.5	.0	.0	.0	3.5	6.5	11.0	18.0	18.5	18.5
4	16.0	12.5	3.5	.0	.0	.0	4.0	7.0	12.5	18.0	19.0	19.0
5	16.0	13.0	2.5	.0	.0	.0	4.0	7.0	13.5	18.5	18.5	19.0
6	14.0	13.0	3.0	.0	.0	.0	4.5	6.5	---	19.0	19.5	19.0
7	14.0	13.0	3.0	.0	.0	.0	4.5	6.5	12.0	19.0	19.5	18.0
8	13.0	12.5	2.0	.0	.0	.0	---	6.5	12.0	18.5	19.0	19.0
9	14.5	10.0	2.5	.0	.0	.0	---	9.0	13.5	16.5	---	18.0
10	12.5	12.0	2.5	.0	.0	.0	---	9.0	12.5	16.0	17.0	18.0
11	13.0	12.5	2.0	.0	.0	.0	4.5	5.5	13.0	16.5	20.0	18.0
12	14.0	11.5	4.5	.0	.0	.0	4.5	6.5	17.0	17.5	17.5	18.0
13	14.0	12.5	3.0	.0	.0	.0	5.5	8.0	14.0	19.0	---	19.0
14	13.0	12.5	3.5	.0	.0	1.0	5.0	9.0	13.5	17.5	17.0	19.0
15	14.0	12.0	3.0	.0	.0	2.0	4.5	9.0	13.0	18.0	19.0	20.0
16	14.5	11.5	2.5	.0	.0	2.0	5.0	6.5	13.5	19.5	19.0	19.0
17	13.5	11.5	1.5	.0	.0	1.0	3.5	7.0	14.5	18.0	18.0	19.0
18	14.5	11.0	1.5	.0	.0	3.0	4.0	7.0	14.5	---	19.0	18.5
19	14.0	10.0	1.0	.0	.0	3.0	4.5	9.0	15.5	19.0	---	18.0
20	14.0	.0	.0	.0	.0	3.0	5.0	8.5	15.5	19.0	18.5	17.5
21	13.5	.0	1.0	.0	.0	5.5	5.0	10.0	---	19.0	17.0	18.0
22	12.0	2.0	1.0	.0	1.5	5.0	4.5	7.0	15.5	20.0	18.0	18.0
23	11.5	.0	1.5	.0	.0	3.5	5.0	7.0	16.0	19.5	18.0	18.0
24	13.0	.0	.0	.0	.0	4.5	5.5	9.0	16.5	19.0	17.0	17.5
25	13.5	.0	.0	.0	.0	4.0	6.0	8.0	16.0	19.0	17.5	18.0
26	13.5	.0	.0	.0	.0	4.0	6.0	8.0	19.0	19.5	18.0	17.5
27	13.5	5.0	.0	1.0	.0	5.0	7.0	10.0	18.5	19.0	18.0	17.0
28	13.5	5.0	.0	1.5	.0	5.0	6.0	9.5	18.5	19.5	18.0	17.5
29	14.0	.0	.0	1.5	---	5.0	7.0	10.5	17.5	19.0	17.5	---
30	13.5	7.0	.0	.0	---	4.5	8.0	10.0	17.5	19.5	17.5	18.0
31	12.5	---	.0	.0	---	5.0	---	10.5	---	---	18.0	---
MEAN	14.0	8.0	2.0	.0	.0	2.0	5.0	8.0	14.5	18.5	18.5	18.5

06440000 MISSOURI RIVER AT PIERRE, SD--Continued

PHYTOPLANKTON ANALYSES

	NOV 30,77	MAR 21,78	MAY 19,78	JUN 12,78	JUL 13,78
DATE	NOV 30,77	MAR 21,78	MAY 19,78	JUN 12,78	JUL 13,78
TIME	1400	1330	1330	1400	1530
TOTAL CELLS/ML	160	27	890	230	200
DIVERSITY: DIVISION	1.0	0.0	0.3	0.0	1.0
.CLASS	1.0	0.0	0.3	0.0	1.4
..ORDER	1.2	0.0	1.0	0.0	1.4
...FAMILY	1.5	1.0	1.0	0.0	1.4
....GENUS	1.5	1.0	1.0	0.0	1.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	120#	73	--	-		-	--	-	--	-
...OOCYSTACEAE										
....OOCYSTIS	--	-	--	-	--	-	--	-	110#	56
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	14	9	--	-	--	-	--	-	22	11
..PENNALES										
...ACHNANTHACEAE										
....RHOICOSPHENIA	7	5	--	-	--	-	--	-	--	-
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	--	-	230#	100	--	-
....SYNEDRA	--	-	14#	50	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	7	5	--	-	19	2	--	-	--	-
...NITZSCHIACEAE										
....NITZSCHIA	7	5	14#	50	--	-	--	-	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	--	-	--	-	67#	33
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	--	-	--	-	170#	19	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	--	-	--	-	680#	77	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	7	5	--	-	--	-	--	-	--	-
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	19	2	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06441000 BAD RIVER NEAR MIDLAND, SD

LOCATION.--Lat 44°04'01", long 101°09'36", in NE¼NW¼ sec.7, T.1 N., R.25 E., Haakon County, Hydrologic Unit 10140102, on right bank at downstream side of bridge on State Highway 63, 0.4 mi (0.6 km) southwest of Midland, 2.0 mi (3.2 km) upstream from Mitchell Creek, and 3.7 mi (6.0 km) upstream from Ash Creek.

DRAINAGE AREA.--1,460 mi² (3,780 km²), approximately.

PERIOD OF RECORD.--October 1945 to current year. Prior to February 1946 monthly discharge only, published in WSP 1309.

REVISED RECORDS.--WSP 2117: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,849.14 ft (563.618 m) National Geodetic Vertical Datum of 1929. Prior to Feb. 21, 1961, nonrecording gage, and Feb. 21, 1961, to June 14, 1967, water-stage recorder at site 4.2 mi (6.8 km) downstream at datum 15.72 ft (4.791 m) lower. June 15 to July 26, 1967, nonrecording gage at site 30 ft (9 m) upstream and July 27, 1967, to June 14, 1971, water-stage recorder at site 60 ft (18 m) upstream, both at present datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 65.9 ft³/s (1.866 m³/s), 47,740 acre-ft/yr (58.9 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s), 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft³/s (833 m³/s) June 15, 1967, gage height, 24.44 ft (7.449 m), from floodmarks, 20.10 ft (6.126 m), from floodmarks, at former site and datum, from rating curve extended above 16,000 ft³/s (453 m³/s); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14.2 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	2330	*11100	314	*22.49	6.855
Apr. 30	0600	702	19.9	9.53	2.905
Aug. 29	0400	835	23.6	10.21	3.112

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	69	.00	.74	.00	.00	.00	253	366	245	.66	.74	15
2	122	.00	.52	.00	.00	.00	199	199	245	.46	.66	8.4
3	45	.00	.46	.00	.00	.00	162	134	68	.30	.46	5.3
4	161	.00	.46	.00	.00	.00	131	91	41	.21	.35	3.3
5	59	.00	.40	.00	.00	.00	108	65	30	.14	.17	2.8
6	16	.00	.20	.00	.00	.00	78	51	22	.11	.11	1.6
7	7.1	.00	.15	.00	.00	.00	70	47	17	.08	.06	1.1
8	3.9	.00	.10	.00	.00	.00	59	49	25	.14	.04	.59
9	2.0	.18	.05	.00	.00	.00	47	49	16	.11	.01	.30
10	3.1	.14	.00	.00	.00	.00	34	68	11	.06	.00	.14
11	2.6	.08	.00	.00	.00	5.0	27	68	8.2	.04	.00	.06
12	1.9	.04	.00	.00	.00	50	22	59	6.2	.01	.00	.01
13	1.9	.01	.00	.00	.00	300	19	45	5.1	.01	.00	.00
14	1.4	.00	.00	.00	.00	590	17	32	4.3	.08	.00	.00
15	.74	3.5	.00	.00	.00	1000	17	26	3.7	.08	.00	.00
16	.91	15	.00	.00	.00	2000	18	22	3.1	.04	1.3	.00
17	.82	11	.00	.00	.00	3000	17	18	3.0	.01	.35	.00
18	.46	10	.50	.00	.00	4000	22	17	2.6	.00	64	.00
19	.21	7.4	.40	.00	.00	5750	38	15	2.6	.00	27	.00
20	.14	4.5	.10	.00	.00	8640	72	13	2.2	.00	11	.00
21	.01	3.3	.00	.00	.00	8820	122	12	1.6	.06	6.0	.00
22	.02	2.5	.00	.00	.00	5180	104	10	1.6	.25	3.9	.00
23	.00	1.9	.00	.00	.00	3200	122	9.3	1.6	.08	2.6	.00
24	.00	1.3	.00	.00	.00	1670	174	7.9	1.6	74	1.8	.00
25	.00	1.0	.00	.00	.00	883	269	6.7	1.5	74	1.3	.00
26	.00	.82	.01	.00	.00	612	165	22	3.3	19	.74	.00
27	.00	.66	.02	.00	.00	608	107	18	2.2	8.2	.74	.00
28	.00	.59	.01	.00	.00	604	84	24	1.4	4.5	37	.00
29	.00	.52	.00	.00	---	528	217	47	1.0	2.6	362	.00
30	.00	.52	.00	.00	---	424	649	302	.82	1.6	52	.00
31	.00	---	.00	.00	---	321	---	243	---	1.1	36	---
TOTAL	499.21	64.96	4.12	.00	.00	48185.00	3423	2135.9	777.62	187.93	610.33	38.60
MEAN	16.1	2.17	.13	.000	.000	1554	114	68.9	25.9	6.06	19.7	1.29
MAX	161	15	.74	.00	.00	8820	649	366	245	74	362	15
MIN	.00	.00	.00	.00	.00	.00	17	6.7	.82	.00	.00	.00
AC-FT	990	129	8.2	.00	.00	95570	6790	4240	1540	373	1210	77

CAL YR 1977 TOTAL 15011.11 MEAN 41.1 MAX 1810 MIN .00 AC-FT 29770
WTR YR 1978 TOTAL 55926.67 MEAN 153 MAX 8820 MIN .00 AC-FT 110900

06441500 BAD RIVER NEAR FORT PIERRE, SD

LOCATION.--Lat 44°19'36", long 100°23'02", in NW¼NW¼ sec.10, T.4 N., R.31 E., Stanley County, Hydrologic Unit 10140102, on right bank at downstream side of highway bridge, 2.1 mi (3.4 km) south of Fort Pierre, 4.3 mi (6.9 km) downstream from Willow Creek, and 6.0 mi (9.7 km) upstream from mouth.

DRAINAGE AREA.--3,107 mi² (8,047 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year. Monthly discharge only for July 1932 to February 1934, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 856: 1929(M), 1937.

GAGE.--Water-stage recorder. Datum of gage is 1,427.83 ft (435.203 m) National Geodetic Vertical Datum of 1929. Prior to July 10, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor.

AVERAGE DISCHARGE.--50 years, 153 ft³/s (4.333 m³/s), 110,800 acre-ft/yr (137 hm³/yr); median of yearly mean discharges, 103 ft³/s (2.92 m³/s), 74,600 acre-ft/yr (92 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 43,800 ft³/s (1,240 m³/s) June 18, 1967, gage height, 29.55 ft (9.007 m); no flow for long periods in each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1927 reached a stage of 30.89 ft (9.415 m), from floodmarks, discharge, about 55,000 ft³/s (1,560 m³/s). Flood in July 1905 reached a stage about 2 ft (0.610 m) higher than that in April 1927.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 2,000 ft³/s (56.6 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 20	2400	*19200	544	*25.52	7.778	May 1	1200	3040	86.1	11.43	3.484
Apr. 19	0300	3660	104	12.54	3.822						

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	429	.03	.15	.60	.00	.0	673	2690	442	33	8.8	62
2	740	.00	.15	.60	.00	.0	478	1580	293	33	7.0	30
3	834	.00	.10	.70	.00	.0	349	748	358	32	7.5	15
4	512	.00	.10	.70	.00	.0	256	484	202	31	7.9	6.2
5	350	.05	.05	.70	.00	.0	195	329	107	30	8.3	3.8
6	260	.10	.05	.60	.00	.0	155	236	70	31	7.9	3.0
7	184	.06	.00	.60	.00	1.0	133	392	61	31	7.9	3.0
8	101	.06	.00	.40	.00	3.0	110	424	43	32	8.3	3.0
9	64	31	.00	.40	.00	5.0	91	223	31	33	8.3	2.7
10	41	25	.10	.30	.00	10	74	163	26	35	7.9	1.8
11	32	22	.50	.30	.00	100	60	127	24	35	8.3	1.6
12	21	21	1.0	.35	.00	500	58	120	22	36	8.8	1.1
13	13	25	3.0	.40	.00	1000	56	106	20	36	8.8	.42
14	10	30	6.0	.40	.00	1500	53	102	17	30	8.8	.23
15	5.3	50	6.0	.40	.00	3200	52	82	16	22	116	.12
16	5.3	62	5.5	.20	.00	5000	136	54	15	18	128	.10
17	5.8	53	5.5	.10	.00	4500	840	42	14	13	276	.10
18	3.3	21	5.0	.00	.00	6120	2300	37	12	11	95	.76
19	2.0	15	5.0	.00	.00	10800	2710	37	11	8.3	51	.57
20	1.1	10	5.0	.00	.00	15600	1250	37	11	7.0	41	.13
21	.66	5.0	4.5	.05	.00	18000	778	39	10	6.6	37	.06
22	.42	2.5	3.5	.05	.00	15800	556	40	10	6.6	38	.02
23	.57	2.0	3.0	.04	.00	11600	703	39	9.2	53	110	.02
24	.31	.50	2.5	.04	.00	6690	637	35	9.2	36	59	.02
25	.27	.10	2.0	.02	.00	3330	529	30	7.9	15	52	.02
26	.36	.10	1.8	.00	.00	1840	526	23	7.9	12	33	.02
27	.20	.20	1.4	.00	.00	1620	426	34	29	27	29	.02
28	.15	.20	1.2	.00	.00	1420	293	249	48	36	90	.02
29	.12	.20	1.0	.00	---	1230	260	148	33	17	69	.02
30	.15	.20	1.0	.00	---	1070	997	354	33	11	133	.02
31	.13	---	.80	.00	---	872	---	541	---	10	334	---
TOTAL	3617.14	376.30	65.90	7.95	.00	111811.0	15734	9545	1992.2	767.5	1805.5	135.87
MEAN	117	12.5	2.13	.26	.000	3607	524	308	66.4	24.8	58.2	4.53
MAX	834	62	6.0	.70	.00	18000	2710	2690	442	53	334	62
MIN	.12	.00	.00	.00	.00	.00	52	23	7.9	6.6	7.0	.02
AC-FT	7170	746	131	16	.00	221800	31210	18930	3950	1520	3580	269

CAL YR 1977 TOTAL 51244.03 MEAN 140 MAX 3580 MIN .00 AC-FT 101600
WTR YR 1978 TOTAL 145858.36 MEAN 400 MAX 18000 MIN .00 AC-FT 289300

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1972 to September 1978.

PERIOD OF DAILY RECORD.--
SUSPENDED SEDIMENT DISCHARGE: October 1971 to current year.

REMARKS.--Records fair. Water year 1977: No flow Oct. 1 to Mar. 8, Aug. 3-11, Aug. 31 to Sept. 13, Aug. 17-22.

Water year 1978: No flow Nov. 2-4, Dec. 7-9, Jan. 18-20, Jan. 26 to Mar. 6. Flow affected by ice Nov. 19 to Mar. 17. Sediment discharge records prior to Oct. 1, 1971, on file in the District office, Corps of Engineers, Omaha, NE.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SEDIMENT CONCENTRATIONS: Maximum daily mean, 97,000 mg/L Apr. 21, 1974; minimum daily mean, 0 mg/L on many days each year.
SEDIMENT LOADS: Maximum daily, 783,000 tons (710,000 tonnes) May 2, 1972; minimum daily, 0 ton (0 tonne) on many days each year.

EXTREMES FOR CURRENT PERIOD.--
Water year 1977:
SEDIMENT CONCENTRATIONS: Maximum daily mean, 69,000 mg/L June 22; minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 667,000 tons (605,100 tonnes) June 22; minimum daily, 0 ton (0 tonne) on many days.

Water year 1978:
SEDIMENT CONCENTRATIONS: Maximum daily mean, 52,500 mg/L Apr. 18, minimum daily mean, 0 mg/L on many days.
SEDIMENT LOADS: Maximum daily, 420,000 tons (381,000 tonnes); minimum daily, 0 ton (0 tonne) on many days.

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	.00	0	.00	.00	0	.00	.00	0	.00
2	.00	0	.00	.00	0	.00	.00	0	.00
3	.00	0	.00	.00	0	.00	.00	0	.00
4	.00	0	.00	.00	0	.00	.00	0	.00
5	.00	0	.00	.00	0	.00	.00	0	.00
6	.00	0	.00	.00	0	.00	.00	0	.00
7	.00	0	.00	.00	0	.00	.00	0	.00
8	.00	0	.00	.00	0	.00	.00	0	.00
9	.00	0	.00	.00	0	.00	.00	0	.00
10	.00	0	.00	.00	0	.00	.00	0	.00
11	.00	0	.00	.00	0	.00	.00	0	.00
12	.00	0	.00	.00	0	.00	.00	0	.00
13	.00	0	.00	.00	0	.00	.00	0	.00
14	.00	0	.00	.00	0	.00	.00	0	.00
15	.00	0	.00	.00	0	.00	.00	0	.00
16	.00	0	.00	.00	0	.00	.00	0	.00
17	.00	0	.00	.00	0	.00	.00	0	.00
18	.00	0	.00	.00	0	.00	.00	0	.00
19	.00	0	.00	.00	0	.00	.00	0	.00
20	.00	0	.00	.00	0	.00	.00	0	.00
21	.00	0	.00	.00	0	.00	.00	0	.00
22	.00	0	.00	.00	0	.00	.00	0	.00
23	.00	0	.00	.00	0	.00	.00	0	.00
24	.00	0	.00	.00	0	.00	.00	0	.00
25	.00	0	.00	.00	0	.00	.00	0	.00
26	.00	0	.00	.00	0	.00	.00	0	.00
27	.00	0	.00	.00	0	.00	.00	0	.00
28	.00	0	.00	.00	0	.00	.00	0	.00
29	.00	0	.00	.00	0	.00	.00	0	.00
30	.00	0	.00	.00	0	.00	.00	0	.00
31	.00	0	.00	---	---	---	.00	0	.00
TOTAL	0.00	---	0.00	0.00	---	0.00	0.00	---	0.00

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.00	0	.00	.00	0	.00	.00	0	0
2	.00	0	.00	.00	0	.00	.00	0	0
3	.00	0	.00	.00	0	.00	.00	0	0
4	.00	0	.00	.00	0	.00	.00	0	0
5	.00	0	.00	.00	0	.00	.00	0	0
6	.00	0	.00	.00	0	.00	.00	0	0
7	.00	0	.00	.00	0	.00	.00	0	0
8	.00	0	.00	.00	0	.00	.00	0	0
9	.00	0	.00	.00	0	.00	22	11600	689
10	.00	0	.00	.00	0	.00	262	44000	31100
11	.00	0	.00	.00	0	.00	307	33000	27400
12	.00	0	.00	.00	0	.00	329	23500	20900
13	.00	0	.00	.00	0	.00	182	14000	6880
14	.00	0	.00	.00	0	.00	338	17000	15500
15	.00	0	.00	.00	0	.00	422	28300	32200
16	.00	0	.00	.00	0	.00	432	27000	31500
17	.00	0	.00	.00	0	.00	495	27000	36100
18	.00	0	.00	.00	0	.00	529	30200	43100
19	.00	0	.00	.00	0	.00	432	24500	28600
20	.00	0	.00	.00	0	.00	314	15500	13100
21	.00	0	.00	.00	0	.00	206	11500	6400
22	.00	0	.00	.00	0	.00	225	9300	5650
23	.00	0	.00	.00	0	.00	367	27500	27200
24	.00	0	.00	.00	0	.00	589	28000	44500
25	.00	0	.00	.00	0	.00	649	26500	46400
26	.00	0	.00	.00	0	.00	512	20200	27900
27	.00	0	.00	.00	0	.00	512	16600	22900
28	.00	0	.00	.00	0	.00	798	18200	39200
29	.00	0	.00	---	---	---	3160	53800	459000
30	.00	0	.00	---	---	---	2600	25800	181000
31	.00	0	.00	---	---	---	1020	12000	33000
TOTAL	0.00	---	0.00	0.00	---	0.00	14702.00	---	1180219

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)
MAR										
14...	1000	1.5	325	15100	13300	73	87	98	100	--
17...	0915	5.0	464	27100	34000	67	81	97	99	100
23...	1445	5.5	405	31000	33900	70	80	96	100	--
24...	0725	6.0	532	28000	40200	76	77	96	99	100
31...	1200	3.0	966	12000	31300	60	73	90	99	100
APR										
07...	1445	12.5	574	9880	15400	62	75	93	98	100
JUN										
04...	0820	22.0	46	13200	1640	90	95	--	100	--
13...	0715	27.0	452	44500	54300	61	78	98	100	--
14...	1400	22.5	138	24400	9090	73	89	99	100	--
22...	0810	18.5	6210	81700	1370000	57	76	95	99	100
22...	1020	21.0	5170	96600	1348000	29	60	93	99	100
JUL										
03...	0940	14.0	223	32400	19500	66	80	97	100	--
26...	0820	22.0	12	58500	1900	76	90	--	100	--
SEP										
24...	0725	14.0	1600	49700	21500	70	80	98	100	--

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCENTRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		APRIL			MAY			JUNE	
1	1210	23500	76800	16	253	11	84	3800	862
2	1100	23500	69800	15	276	11	66	1700	303
3	745	13700	27600	14	284	11	35	900	85
4	574	7000	10800	12	298	9.7	39	600	63
5	452	5000	6100	7.9	251	5.4	13	450	16
6	429	5600	6490	4.6	261	3.2	13	490	17
7	568	9500	14600	2.7	258	1.9	4.9	362	4.8
8	601	10500	17000	1.3	254	.89	3.0	300	2.4
9	1420	16300	62500	.99	286	.76	.99	230	.6
10	1920	12400	64300	1.1	345	1.0	.76	245	.5
11	1970	10500	55800	1.3	335	1.2	.31	250	.2
12	1660	8120	36400	.49	335	.44	495	42900	57300
13	1330	7950	28500	.28	336	.25	258	44000	30700
14	1140	6730	20700	.19	306	.16	167	24000	10800
15	1420	6600	25300	.10	276	.07	104	14500	4070
16	1420	7700	29500	.15	304	.12	41	1000	111
17	706	8000	15200	.20	332	.18	14	344	13
18	492	5800	7700	.10	323	.09	7.1	260	5.0
19	372	4600	4620	.08	314	.07	3.6	261	2.5
20	274	3000	2220	.01	316	.01	1.3	270	1.0
21	221	1750	1040	.10	318	.09	.49	279	.4
22	163	1180	519	6.6	460	8.2	3580	69000	667000
23	121	711	232	7.5	790	16	942	21000	53400
24	95	497	127	1.4	1060	4.0	422	325	370
25	79	426	91	.13	770	.27	234	249	157
26	64	342	59	.08	600	.13	130	372	131
27	50	306	41	.05	490	.07	74	229	46
28	41	278	31	45	630	77	35	235	22
29	33	266	24	35	390	37	6.6	246	4.4
30	29	236	18	26	510	36	3.3	231	2.1
31	---	---	---	137	9800	3630	---	---	---
TOTAL	20699	---	584112	337.35	---	3867.20	6778.35	---	825489.9

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	TIME	TEMPERATURE (DEG C) (00010)	NUMBER OF SAMPLING POINTS (00063)	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
APR							
07...	1445	12.5	1	574	4	5	6

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN- TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	2.0	230	1.2	.04	250	.03	.00	0	.0
2	.23	230	.14	.01	200	.01	.00	0	.0
3	360	48800	47400	.00	0	.00	.00	0	.0
4	113	27000	8240	.00	0	.00	.00	0	.0
5	31	1800	151	.00	0	.00	.00	0	.0
6	19	500	26	.00	0	.00	.00	0	.0
7	38	5800	595	.00	0	.00	.00	0	.0
8	8.8	500	12	.00	0	.00	.00	0	.0
9	6.6	300	5.3	.00	0	.00	.00	0	.0
10	10	4500	121	.00	0	.00	.00	0	.0
11	267	37800	27300	.00	0	.00	.00	0	.0
12	36	13500	1310	248	21000	14100	.00	0	.0
13	9.2	1000	25	88	3500	832	.00	0	.0
14	92	19500	4840	35	1000	94	1.2	1500	4.9
15	9.2	2300	57	16	436	19	.13	350	.1
16	27	8000	583	9.8	400	11	.03	200	.0
17	20	1500	81	4.6	375	4.7	.00	0	.0
18	5.8	800	13	1.6	350	1.5	.00	0	.0
19	1.8	300	1.5	.36	340	.33	.00	0	.0
20	5.0	2000	27	.13	330	.12	.00	0	.0
21	7.1	1200	23	.08	320	.07	.00	0	.0
22	2.0	800	4.3	.02	310	.02	.00	0	.0
23	.76	300	.62	.03	300	.02	1180	40000	127000
24	.28	250	.19	.01	290	.01	1140	44000	135000
25	62	28000	4690	.02	280	.02	268	16000	11600
26	11	4000	119	.36	270	.26	177	6000	2870
27	2.2	856	5.1	.13	260	.09	140	3490	1320
28	.87	735	1.7	.08	250	.05	117	1940	613
29	.23	400	.25	.09	240	.06	57	500	77
30	.10	350	.09	.02	230	.01	35	300	28
31	.08	300	.06	.00	0	.00	---	---	---
TOTAL	1148.25	---	95633.45	404.38	---	15063.30	3115.36	---	278513.0
YEAR	47184.69		2982897.85						

PARTICLE-SIZE DISTRIBUTION OF SURFACE BED MATERIAL, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
APR							
07...	8	38	40	58	74	83	100

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		OCTOBER			NOVEMBER			DECEMBER	
1	429	18000	20800	.03	50	.00	.15	60	.02
2	740	17500	35000	.00	0	.00	.15	55	.02
3	834	6500	14600	.00	0	.00	.10	55	.01
4	512	2800	3870	.00	0	.00	.10	50	.01
5	350	2100	1980	.05	50	.01	.05	50	.01
6	260	1900	1330	.10	50	.01	.05	50	.01
7	184	1690	840	.06	100	.02	.00	0	.00
8	101	2900	791	.06	150	.02	.00	0	.00
9	64	18200	3140	31	1920	161	.00	0	.00
10	41	20700	2290	25	830	56	.10	50	.01
11	32	8000	691	22	500	30	.50	60	.08
12	21	1000	57	21	380	22	1.0	70	.19
13	13	500	18	25	300	20	3.0	70	.57
14	10	450	12	30	250	20	6.0	65	1.1
15	5.3	400	5.7	50	900	121	6.0	65	1.1
16	5.3	350	5.0	62	1400	234	5.5	65	.97
17	5.8	325	5.1	53	300	43	5.5	60	.89
18	3.3	300	2.7	21	150	8.5	5.0	60	.81
19	2.0	250	1.4	15	125	5.1	5.0	60	.81
20	1.1	228	.68	10	100	2.7	5.0	60	.81
21	.66	220	.39	5.0	95	1.3	4.5	60	.73
22	.42	200	.23	2.5	90	.61	3.5	60	.57
23	.57	180	.28	2.0	85	.46	3.0	60	.49
24	.31	160	.13	.50	80	.11	2.5	60	.41
25	.27	140	.10	.10	80	.02	2.0	55	.30
26	.36	120	.12	.10	75	.02	1.8	55	.27
27	.20	100	.05	.20	75	.04	1.4	55	.21
28	.15	90	.04	.20	70	.04	1.2	55	.18
29	.12	80	.03	.20	70	.04	1.0	55	.15
30	.15	70	.03	.20	65	.04	1.0	55	.15
31	.13	60	.02	---	---	---	.80	55	.12
TOTAL	3617.14	---	85441.00	376.30	---	726.04	65.90	---	11.00

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. FALL DIAM. % FINER THAN .002 MM (70337)	SED. SUSP. FALL DIAM. % FINER THAN .004 MM (70338)	SED. SUSP. FALL DIAM. % FINER THAN .016 MM (70340)	SED. SUSP. FALL DIAM. % FINER THAN .062 MM (70342)	SED. SUSP. FALL DIAM. % FINER THAN .125 MM (70343)
OCT										
01...	1540	12.0	876	28000	66200	73	86	91	99	100
11...	1000	7.0	35	10400	983	--	--	96	99	100
APR										
24...	1215	8.5	628	6590	11200	68	82	91	96	100

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JANUARY			FEBRUARY			MARCH	
1	.60	50	.08	.00	0	.00	.0	0	0
2	.60	50	.08	.00	0	.00	.0	0	0
3	.70	50	.09	.00	0	.00	.0	0	0
4	.70	50	.09	.00	0	.00	.0	0	0
5	.70	50	.09	.00	0	.00	.0	0	0
6	.60	50	.08	.00	0	.00	.0	0	0
7	.60	50	.08	.00	0	.00	1.0	100	0
8	.40	50	.05	.00	0	.00	3.0	200	2
9	.40	45	.05	.00	0	.00	5.0	300	4
10	.30	45	.04	.00	0	.00	10	1100	30
11	.30	45	.04	.00	0	.00	100	1350	364
12	.35	45	.04	.00	0	.00	500	1950	2630
13	.40	45	.05	.00	0	.00	1000	2750	7420
14	.40	45	.05	.00	0	.00	1500	1750	7090
15	.40	40	.04	.00	0	.00	3200	2350	20300
16	.20	40	.02	.00	0	.00	5000	3850	52000
17	.10	40	.01	.00	0	.00	4500	2900	35200
18	.00	0	.00	.00	0	.00	6120	4300	71100
19	.00	0	.00	.00	0	.00	10800	7200	210000
20	.00	0	.00	.00	0	.00	15600	7200	303000
21	.05	40	.01	.00	0	.00	18000	8650	420000
22	.05	40	.01	.00	0	.00	15800	6600	282000
23	.04	40	.00	.00	0	.00	11600	4800	150000
24	.04	40	.00	.00	0	.00	6690	6050	109000
25	.02	40	.00	.00	0	.00	3330	6650	59800
26	.00	0	.00	.00	0	.00	1840	8100	40200
27	.00	0	.00	.00	0	.00	1620	11100	48600
28	.00	0	.00	.00	0	.00	1420	10100	38700
29	.00	0	.00	---	---	---	1230	6900	22900
30	.00	0	.00	---	---	---	1070	5820	16800
31	.00	0	.00	---	---	---	872	5080	12000
TOTAL	7.95	---	1.00	0.00	---	0.00	111811.0	---	1909140
		APRIL			MAY			JUNE	
1	673	4190	7610	2690	10200	74100	442	8400	10000
2	478	3270	4220	1580	6950	29600	293	18700	14800
3	349	3360	3170	748	4700	9490	358	13200	12800
4	256	1620	1120	484	2750	3590	202	7500	4090
5	195	1280	674	329	1950	1730	107	3800	1100
6	155	948	397	236	1450	924	70	950	180
7	133	1380	496	392	6600	6990	61	2800	461
8	110	970	288	424	9400	10800	43	4000	464
9	91	562	138	223	6900	4150	31	950	80
10	74	392	78	163	1950	858	26	850	60
11	60	385	62	127	700	240	24	800	52
12	58	377	59	120	1150	373	22	740	44
13	56	325	49	106	650	186	20	700	38
14	53	275	39	102	460	127	17	650	30
15	52	200	28	82	380	84	16	600	26
16	136	1200	441	54	360	52	15	550	22
17	840	30500	69200	42	340	39	14	500	19
18	2300	52500	326000	37	320	32	12	450	15
19	2710	31000	227000	37	300	30	11	400	12
20	1250	13000	43900	37	280	28	11	350	10
21	778	6000	12600	39	260	27	10	300	8.1
22	556	3600	5400	40	240	26	10	260	7.0
23	703	6850	13000	39	220	23	9.2	231	5.7
24	637	6300	10800	35	210	20	9.2	220	5.5
25	529	2700	3860	30	200	16	7.9	200	4.3
26	526	3300	4690	23	200	12	7.9	190	4.1
27	426	8200	9430	34	400	37	29	1000	78
28	293	3500	2770	249	14300	9610	48	1500	194
29	260	2900	2040	148	6200	2480	33	800	71
30	997	9400	25300	354	8100	7740	33	500	45
31	---	---	---	541	11800	17200	---	---	---
TOTAL	15734	---	774859	9545	---	180614	1992.2	---	44725.7

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

SUSPENDED-SEDIMENT DISCHARGE (TONS/DAY), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DAY	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)	MEAN DISCHARGE (CFS)	MEAN CONCEN-TRATION (MG/L)	SEDIMENT DISCHARGE (TONS/DAY)
		JULY			AUGUST			SEPTEMBER	
1	33	400	36	8.8	180	4.3	62	18200	3050
2	33	300	27	7.0	180	3.4	30	6000	486
3	32	230	20	7.5	180	3.6	15	900	36
4	31	190	16	7.9	170	3.6	6.2	150	2.5
5	30	170	14	8.3	170	3.8	3.8	100	1.0
6	31	150	13	7.9	170	3.6	3.0	100	.81
7	31	140	12	7.9	160	3.4	3.0	100	.81
8	32	130	11	8.3	160	3.6	3.0	100	.81
9	33	120	11	8.3	160	3.6	2.7	90	.66
10	35	120	11	7.9	160	3.4	1.8	90	.44
11	35	120	11	8.3	150	3.4	1.6	80	.35
12	36	110	11	8.8	150	3.6	1.1	80	.24
13	36	110	11	8.8	140	3.3	.42	70	.08
14	30	110	8.9	8.8	200	4.8	.23	70	.04
15	22	110	6.5	116	18000	5640	.12	60	.02
16	18	110	5.3	128	29000	10000	.10	60	.02
17	13	100	3.5	276	34000	25300	.10	50	.01
18	11	100	3.0	95	3000	769	.76	50	.10
19	8.3	100	2.2	51	500	69	.57	40	.06
20	7.0	100	1.9	41	300	33	.13	40	.01
21	6.6	100	1.8	37	200	20	.06	30	.00
22	6.6	100	1.8	38	100	10	.02	30	.00
23	53	2550	365	110	10500	3120	.02	30	.00
24	36	1350	131	59	3400	542	.02	30	.00
25	15	200	8.1	52	1230	173	.02	20	.00
26	12	100	3.2	33	900	80	.02	20	.00
27	27	1100	80	29	326	26	.02	20	.00
28	36	820	80	90	6200	1510	.02	20	.00
29	17	250	11	69	2200	410	.02	20	.00
30	11	200	5.9	133	17300	6210	.02	20	.00
31	10	200	5.4	334	28700	25900	---	---	---
TOTAL	767.5	---	928.5	1805.5	---	79863.4	135.87	---	3579.96
YEAR	145858.36		3079889.60						

06441500 BAD RIVER NEAR FORT PIERRE, SD--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	3.0	15.5	22.0	---	---	---
2						---	5.5	14.5	20.5	---	---	---
3						---	6.0	14.0	21.0	14.0	---	---
4						---	6.0	18.0	22.0	26.0	---	---
5						---	5.0	14.0	24.5	25.0	---	---
6						---	7.0	17.5	20.0	---	---	---
7						---	9.0	---	20.5	---	---	---
8						---	12.0	16.0	---	---	---	---
9						---	13.0	18.0	19.5	---	---	---
10						5.0	14.0	19.0	22.5	---	---	---
11						5.0	12.0	18.5	21.5	---	---	---
12						2.0	11.5	---	21.5	---	23.0	---
13						3.0	11.5	20.5	27.0	---	18.0	---
14						2.5	12.0	---	20.5	---	21.5	---
15						4.0	14.0	21.5	21.5	---	22.0	---
16						4.5	15.0	---	23.0	---	---	---
17						4.5	15.0	18.5	23.0	---	---	---
18						5.5	15.0	---	20.0	---	---	---
19						5.5	12.0	19.0	21.0	---	---	---
20						5.0	11.0	---	---	---	---	---
21						2.0	10.5	19.0	20.0	---	---	---
22						4.0	14.0	15.0	18.5	---	---	---
23						4.5	14.0	15.5	20.0	---	---	15.5
24						6.0	13.0	21.5	22.5	---	---	14.0
25						8.0	13.0	---	23.5	21.5	---	14.0
26						7.0	13.0	20.5	26.5	22.0	---	14.0
27						7.5	14.0	---	31.5	20.0	---	14.0
28						8.5	16.0	19.0	---	21.0	---	15.0
29						5.5	14.0	19.5	23.0	---	---	---
30						3.0	16.0	20.0	24.0	---	---	---
31						2.0	---	---	---	---	---	---
MEAN						5.0	11.5	18.0	22.5	21.5	21.0	14.5

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12.0	---	.0	.0	.0	---	10.0	14.0	18.0	---	---	22.5
2	---	---	.0	.0	.0	---	8.5	14.0	19.5	---	---	25.0
3	12.0	---	.0	.0	.0	---	9.0	15.0	22.0	---	---	25.0
4	13.0	---	.0	.0	.0	---	10.0	14.0	22.5	---	---	---
5	---	---	.0	.0	.0	---	10.0	16.0	23.0	---	---	---
6	---	---	.0	.0	.0	---	---	14.0	23.0	---	---	---
7	13.0	---	.0	.0	.0	---	11.0	12.0	21.0	---	---	---
8	9.0	---	.0	.0	.0	---	---	11.5	23.5	---	---	---
9	8.5	3.0	.0	.0	.0	---	9.0	13.0	26.5	---	---	---
10	---	1.5	.0	.0	.0	---	8.5	18.0	---	---	---	---
11	7.0	---	.0	.0	.0	3.5	---	19.5	---	---	---	---
12	6.0	---	.0	.0	.0	3.5	9.5	18.0	---	---	---	---
13	---	---	.0	.0	.0	---	---	19.5	---	---	---	---
14	---	---	.0	.0	.0	4.0	---	---	---	---	---	---
15	---	---	.0	.0	.0	2.0	---	21.5	---	---	21.0	---
16	---	4.0	.0	.0	.0	1.0	7.5	---	---	---	23.0	---
17	---	---	.0	.0	.0	1.5	7.0	---	---	---	22.0	---
18	---	---	.0	.0	.0	2.5	5.5	---	---	---	18.0	---
19	---	---	.0	.0	.0	2.5	4.0	---	---	---	---	---
20	12.0	---	.0	.0	.0	3.0	4.5	---	---	---	---	---
21	---	---	.0	.0	.0	4.0	7.0	---	---	---	---	11.0
22	---	---	.0	.0	.0	5.0	7.5	---	---	---	---	---
23	---	---	.0	.0	.0	5.5	8.0	---	28.0	23.5	23.0	---
24	---	---	.0	.0	.0	4.5	10.0	---	---	25.0	---	---
25	---	---	.0	.0	.0	5.0	12.5	---	---	---	28.0	---
26	---	---	.0	.0	.0	6.0	12.5	---	---	---	---	---
27	---	---	.0	.0	.0	8.5	13.5	---	---	---	25.0	---
28	---	---	.0	.0	.0	8.5	13.5	---	---	---	---	---
29	---	---	.0	.0	---	8.5	14.0	21.0	---	---	---	---
30	---	---	.0	.0	---	13.0	13.5	19.5	---	---	22.0	---
31	---	---	.0	.0	---	13.0	---	18.0	---	---	21.5	---
MEAN	10.5	3.0	.0	.0	.0	5.5	9.5	16.5	22.5	24.5	22.5	21.0

06442000 MEDICINE KNOLL CREEK NEAR BLUNT, SD

LOCATION.--Lat 44°33'46", long 99°54'50", in NW¼ sec.31, T.113 N., R.75 W., Sully County, Hydrologic Unit 10140103, on left bank at downstream side of highway bridge, 4.8 mi (7.7 km) northeast of Blunt and 5.5 mi (8.8 km) upstream from South Fork Medicine Knoll Creek.

DRAINAGE AREA.--317 m^2 (821 km^2).

PERIOD OF RECORD.--March 1950 to current year. Prior to October 1959, published as Medicine Creek near Blunt.

REVISED RECORDS.--WRD SD-76-1: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,611.08 ft (491.057 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 31, 1950, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 5.08 ft^3/s (0.144 m^3/s), 3,680 acre-ft/yr (4.54 hm^3/yr); median of yearly mean discharges, 1.0 ft^3/s (0.03 m^3/s), 720 acre-ft/yr (0.89 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,830 ft^3/s (51.8 m^3/s) Apr. 5, 1952, gage height, 12.34 ft (3.761 m), from floodmarks; maximum gage height, 13.2 ft (4.02 m) between Mar. 26-29, 1950, from floodmarks (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge		Gage height	
		(ft^3/s)	(m^3/s)	(ft)	(m)
Mar. 20	unknown	*1620	45.9	*12.37	3.770
Aug. 28	1700	71	2.01	9.18	2.798

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	50	2.7	.00	.00	.00	31
2	.00	.00	.00	.00	.00	.00	25	1.8	.00	.00	.00	24
3	.00	.00	.00	.00	.00	.00	15	1.0	.00	.00	.00	14
4	.00	.00	.00	.00	.00	.00	7.7	.28	.00	.00	.00	7.0
5	.00	.00	.00	.00	.00	.00	5.1	.02	.00	.00	.00	3.6
6	.00	.00	.00	.00	.00	.00	2.8	.00	.00	.00	.00	1.7
7	.00	.00	.00	.00	.00	.00	1.0	.00	.00	.00	.00	.52
8	.00	.00	.00	.00	.00	.00	.72	.00	.00	.00	.00	.08
9	.00	.00	.00	.00	.00	.00	.72	.00	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	.58	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	.39	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	.72	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	.20	.25	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	.50	.06	.00	.00	.00	.00	.00
15	.00	.00	.00	.00	.00	5.0	.02	.00	.00	.00	.00	.00
16	.00	.00	.00	.00	.00	10	.02	.00	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	100	.01	.00	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	500	.25	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	1000	5.4	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	1550	16	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	1000	18	.00	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	700	16	.00	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	460	16	.00	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	350	16	.00	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	250	17	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	200	15	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	150	10	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	130	6.3	.00	.00	.00	45	.00
29	.00	.00	.00	.00	---	120	4.4	.00	.00	.00	52	.00
30	.00	.00	.00	.00	---	120	3.8	.00	.00	.00	45	.00
31	.00	---	.00	.00	---	100	---	.00	---	.00	40	---
TOTAL	.00	.00	.00	.00	.00	6745.70	254.24	5.80	.00	.00	182.00	81.90
MEAN	.000	.000	.000	.000	.000	218	8.47	.19	.000	.000	5.87	2.73
MAX	.00	.00	.00	.00	.00	1550	50	2.7	.00	.00	52	31
MIN	.00	.00	.00	.00	.00	.00	.01	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	13380	504	12	.00	.00	361	162

CAL YR 1977 TOTAL 0.00 MEAN .000 MAX .00 MIN .00 AC-FT 0

WTR YR 1978 TOTAL 7269.64 MEAN 19.9 MAX 1550 MIN .00 AC-FT 14420

06442500 MEDICINE CREEK AT KENNEBEC, SD

LOCATION.--Lat 43°54'17", long 99°52'35", in NW¼NE¼ sec.18, T.105 N., R.75 W., Lyman County, Hydrologic Unit 10140104, on right bank 4 ft (1 m) downstream from highway bridge, 0.5 mi (0.8 km) west of Kennebec and 0.5 mi (0.8 km) downstream from small right-bank tributary.

DRAINAGE AREA.--465 mi^2 (1,200 km^2), approximately.

PERIOD OF RECORD.--July 1954 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,659.64 ft (505.858 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 28, 1954, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--24 years, 15.6 ft^3/s (0.442 m^3/s), 11,300 acre-ft/yr (13.9 hm^3/yr); median of yearly mean discharges, 7.2 ft^3/s (0.20 m^3/s), 5,200 acre-ft/yr (6.4 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,970 ft^3/s (254 m^3/s) Mar. 28, 1960, gage height, 16.71 ft (5.093 m); no flow for many days each year.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1952 reached a stage of 17.0 ft (5.18 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 20	0200	*3100	87.8	*14.24	4.340	May 28	1900	450	12.7	5.78	1.762

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	43	17	15	.00	.00	.00
2	1.0	.00	.00	.00	.00	.00	34	15	9.3	.00	.00	.00
3	9.0	.00	.00	.00	.00	.00	29	12	6.8	.00	.00	.00
4	6.0	.00	.00	.00	.00	.00	24	10	4.6	.00	.00	.00
5	4.0	.00	.00	.00	.00	.00	20	9.0	3.3	.00	.00	.00
6	2.5	.00	.00	.00	.00	.00	16	8.0	3.3	.00	.00	.00
7	1.6	.00	.00	.00	.00	.00	13	15	2.7	.50	.00	.00
8	1.1	.00	.00	.00	.00	.00	11	25	2.1	.80	.00	.00
9	.71	.00	.00	.00	.00	.00	9.0	60	1.5	1.0	.00	.00
10	.45	.00	.00	.00	.00	.00	7.8	50	1.2	.70	.00	.00
11	.14	.00	.00	.00	.00	.00	6.2	40	.90	.50	.00	.00
12	.05	.00	.00	.00	.00	1.0	5.1	34	.57	.30	.00	.00
13	.00	.00	.00	.00	.00	40	4.2	27	.32	.14	.00	.00
14	.00	.00	.00	.00	.00	350	3.3	23	.20	.00	.00	.00
15	.00	.00	.00	.00	.00	700	3.1	19	.09	.00	.03	.00
16	.00	.00	.00	.00	.00	1020	2.9	16	.00	.00	1.0	.00
17	.00	.00	.00	.00	.00	1070	4.2	13	.00	.00	.51	.00
18	.00	.00	.00	.00	.00	1040	95	11	.00	.00	.02	.00
19	.00	.00	.00	.00	.00	1660	50	9.7	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	2720	45	7.8	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	2090	45	5.9	.15	.26	.00	.00
22	.00	.00	.00	.00	.00	1380	90	4.9	.00	.71	.00	.00
23	.00	.00	.00	.00	.00	818	80	4.4	.00	1.6	.00	.00
24	.00	.00	.00	.00	.00	450	70	3.9	.00	1.4	.00	.00
25	.00	.00	.00	.00	.00	247	80	3.5	.00	.80	.00	.00
26	.00	.00	.00	.00	.00	160	60	2.7	.00	.38	.00	.00
27	.00	.00	.00	.00	.00	124	50	1.9	.00	.05	.00	.00
28	.00	.00	.00	.00	.00	90	30	208	.00	.00	.00	.00
29	.00	.00	.00	.00	---	93	25	216	.00	.00	.00	.00
30	.00	.00	.00	.00	---	84	20	44	.00	.00	.00	.00
31	.00	---	.00	.00	---	57	---	23	---	.00	.00	---
TOTAL	26.55	.00	.00	.00	.00	14194.00	975.8	939.7	52.03	9.14	1.56	.00
MEAN	.86	.000	.000	.000	.000	458	32.5	30.3	1.73	.29	.050	.000
MAX	9.0	.00	.00	.00	.00	2720	95	216	15	1.6	1.0	.00
MIN	.00	.00	.00	.00	.00	.00	2.9	1.9	.00	.00	.00	.00
AC-FT	53	.00	.00	.00	.00	28150	1940	1860	103	18	3.1	.00

CAL YR 1977 TOTAL 10728.47 MEAN 29.4 MAX 1940 MIN .00 AC-FT 21280
WTR YR 1978 TOTAL 16198.78 MEAN 44.4 MAX 2720 MIN .00 AC-FT 32130

06442700 LAKE SHARPE NEAR FORT THOMPSON, SD

LOCATION.--Lat 44°02'18", long 99°26'45", in SE¼ sec.27, T.107 N., R.72 W., Lyman County, Hydrologic Unit 10140101, at left approach wall of powerhouse at Big Bend Dam on Missouri River, 2.5 mi (4.0 km) south of Fort Thompson, and at mile 987.4 (1,588.7 km).

DRAINAGE AREA.--249,300 mi² (645,700 km²), approximately.

PERIOD OF RECORD.--July 1963 to current year (monthend contents only).

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929.

REMARKS.--Reservoir is formed by earth-fill dam; closure made July 1963; intentional storage began November 1963. Maximum capacity, 1,900,000 acre-ft (2,340 hm³) below elevation, 1,423.0 ft (433.73 m), top of spillway gates. Normal maximum, 1,725,000 acre-ft (2,130 hm³) below elevation 1,420.0 ft (432.82 m). Inactive storage, 1,465,000 acre-ft (1,810 hm³) below elevation 1,415.0 ft (431.29 m). Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of a concrete chute with flat crest at elevation 1,385.0 ft (422.15 m) surmounted by 8 taintor gates, each 40 by 38 ft (12.2 X 11.6 m); design capacity, 390,000 ft³/s (11,000 m³/s). Normal releases are through 8 power units (completed in July 1966), with a generating capacity of 58,500 kilowatts each. Maximum release through powerplant about 100,000 ft³/s (2,830 m³/s). Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevation and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 1,829,000 acre-ft (2,260 hm³) Apr. 22, 1971, elevation, 1,421.9 ft (433.40 m), affected by wind; minimum since initial filling, 1,448,000 acre-ft (1,790 hm³) Sept. 17, 1967, elevation, 1,414.7 ft (431.20 m), affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 1,809,000 acre-ft (2,230 hm³) Dec. 12, elevation, 1,421.3 ft (433.21 m); maximum elevation, 1,421.4 ft (433.24 m) Dec. 14; minimum contents, 1,671,000 acre-ft (2,060 hm³) June 16, elevation, 1,418.9 ft (432.48 m), affected by wind.

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	1420.2	1755000	
Oct. 31	1420.9	1780000	+25000
Nov. 30	1420.8	1765000	-15000
Dec. 31	1420.3	1758000	-7000
CAL YR 1977			-16000
Jan. 31	1420.4	1756000	-2000
Feb. 28	1420.4	1753000	-3000
Mar. 31	1420.3	1756000	+3000
Apr. 30	1420.8	1773000	+17000
May 31	1420.7	1777000	+4000
June 30	1420.2	1738000	-39000
July 31	1420.4	1754000	+16000
Aug. 31	1419.3	1700000	-54000
Sept. 30	1420.3	1742000	+42000
WTR YR 1978			-13000

NOTE.--Reservoir frozen over Dec. 7 to Apr. 11. New capacity table put into use Jan. 1, 1978; contents on Dec. 31 by new capacity table, 1,751,000 acre-ft.

06442950 CROW CREEK NEAR GANN VALLEY, SD

LOCATION.--Lat 43°59'29", long 99°13'07", in NE¼NW¼ sec.15, T.106 N., R.70 W., Buffalo County, Hydrologic Unit 10140105, near center of span at downstream side of highway bridge, 6.4 mi (10.3 km) upstream from Smith Creek, 6.9 mi (11.1 km) downstream from Elm Creek, and 12.0 mi (19.3 km) southwest of Gann Valley.

DRAINAGE AREA.--670 mi² (1,740 km²), approximately.

PERIOD OF RECORD.--October 1971 to current year.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 1,434.73 ft (437.306 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 24.9 ft³/s (0.705 m³/s), 18,040 acre-ft/yr (22.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,900 ft³/s (110 m³/s) Mar. 22, 1978, gage height, 14.60 ft (4.450 m); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	0400	*3900	110	*14.60	4.450
Apr. 19	0500	354	10.0	6.06	1.847
Apr. 23	1900	221	6.26	5.17	1.576
Apr. 26	0500	175	4.96	4.84	1.475
July 1	0300	183	5.18	4.90	1.494

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	125	26	.74	96	.60	.00
2	.00	.00	.00	.00	.00	.00	120	22	.74	26	.50	.00
3	.00	.00	.00	.00	.00	.00	90	19	.53	13	.40	.00
4	.00	.00	.00	.00	.00	.00	60	18	.29	9.6	.30	.00
5	.00	.00	.00	.00	.00	.00	50	16	.19	8.0	.20	.00
6	.00	.00	.00	.00	.00	.00	40	15	.19	7.0	.10	.00
7	.00	.00	.00	.00	.00	.00	35	13	.00	5.0	.08	.00
8	.00	.00	.00	.00	.00	.00	30	12	.00	3.0	.06	.00
9	.00	.00	.00	.00	.00	.00	25	11	.00	1.0	.04	.00
10	.00	.00	.00	.00	.00	.00	20	10	.10	.70	.03	.00
11	.00	.00	.00	.00	.00	.00	17	9.3	.53	.50	.02	.00
12	.00	.00	.00	.00	.00	.00	15	8.7	.06	.29	.01	.00
13	.00	.00	.00	.00	.00	5.0	13	7.9	.00	.24	.01	.00
14	.00	.00	.00	.00	.00	10	13	7.4	.35	.20	.00	.00
15	.00	.00	.00	.00	.00	15	11	6.6	.10	.15	.00	.00
16	.00	.00	.00	.00	.00	30	10	5.4	.00	.10	.00	.00
17	.00	.00	.00	.00	.00	90	14	4.5	.00	.05	.00	.00
18	.00	.00	.00	.00	.00	208	98	4.3	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	762	235	4.3	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	1400	52	3.6	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	2870	55	2.8	.00	29	.00	.00
22	.00	.00	.00	.00	.00	3450	56	1.9	.00	20	.00	.00
23	.00	.00	.00	.00	.00	2810	160	1.4	.00	11	.00	.00
24	.00	.00	.00	.00	.00	1830	155	1.1	.00	6.1	.00	.00
25	.00	.00	.00	.00	.00	1040	97	1.4	.00	3.1	.00	.00
26	.00	.00	.00	.00	.00	544	150	.90	.00	2.0	.00	.00
27	.00	.00	.00	.00	.00	402	72	1.8	.00	1.5	.00	.00
28	.00	.00	.00	.00	.00	354	49	1.3	.00	1.0	.00	.00
29	.00	.00	.00	.00	---	352	39	2.2	.00	.90	.00	.00
30	.00	.00	.00	.00	---	288	38	1.9	.00	.80	.00	.00
31	.00	---	.00	.00	---	172	---	.99	---	.70	.00	---
TOTAL	.00	.00	.00	.00	.00	16632.00	1944	241.69	3.82	246.93	2.35	.00
MEAN	.000	.000	.000	.000	.000	537	64.8	7.80	.13	7.97	.076	.000
MAX	.00	.00	.00	.00	.00	3450	235	26	.74	96	.60	.00
MIN	.00	.00	.00	.00	.00	.00	10	.90	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	32990	3860	479	7.6	490	4.7	.00

CAL YR 1977 TOTAL 3436.63 MEAN 9.42 MAX 500 MIN .00 AC-FT 6820
WTR YR 1978 TOTAL 19070.79 MEAN 52.2 MAX 3450 MIN .00 AC-FT 37830

06445980 WHITE CLAY CREEK NEAR OGLALA, SD

LOCATION.--Lat 43°08'46", long 102°40'58", in SE¼SE¼ sec.30, T.37 N., R.45 W., Shannon County, Hydrologic Unit 10140201, on left bank at downstream side of bridge on U.S. Highway 18, 4.3 mi (6.9 km) southeast of Oglala, 5.5 mi (8.8 km) upstream from Oglala Dam, and 11 mi (18 km) northwest of Pine Ridge.

DRAINAGE AREA.--340 mi^2 (880 km^2), approximately.

PERIOD OF RECORD.--August 1965 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,001.54 ft (914.869 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good except those for winter periods, which are poor. Some storage and possible regulation above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years, 11.1 ft^3/s (0.314 m^3/s), 8,040 acre-ft/yr (9.91 hm^3/yr); median of yearly mean discharges, 9.2 ft^3/s (0.26 m^3/s), 6,700 acre-ft/yr (8.3 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 659 ft^3/s (18.7 m^3/s) June 16, 1967, gage height, 14.74 ft (4.493 m); maximum gage height, 15.02 ft (4.578 m) Mar. 11, 1966 (backwater from ice); no flow at times in 1965, 1970, 1973-75.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 20	0100	285	8.07	11.91	3.630
June 24	1600	*370	10.5	*11.92	3.633
July 21	1830	166	4.70	9.26	2.822

No flow Sept. 11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.2	5.4	10	9.0	9.0	7.5	17	27	27	14	9.7	4.5
2	6.3	5.2	9.0	8.0	8.5	7.5	16	24	22	15	9.4	3.0
3	5.4	5.2	9.0	8.5	8.5	7.5	16	22	21	16	8.8	2.0
4	4.6	5.2	9.0	9.0	9.0	7.5	16	21	18	14	8.6	1.6
5	3.3	5.0	8.0	9.5	9.0	8.5	16	20	18	12	7.9	1.4
6	3.5	1.8	7.0	10	9.0	9.5	15	19	18	11	7.2	1.1
7	4.2	2.2	8.0	10	8.0	12	14	21	17	11	6.2	.89
8	4.3	5.0	7.0	9.5	7.5	15	14	23	17	10	6.0	.81
9	4.6	8.5	6.0	9.0	8.0	20	14	23	16	11	5.6	.55
10	5.4	9.0	6.5	8.5	8.5	25	14	23	15	11	4.7	.16
11	5.7	10	7.5	9.0	8.5	30	14	21	14	11	5.4	.00
12	6.3	10	8.5	9.5	8.0	40	15	21	13	11	5.0	.28
13	6.2	9.5	9.5	10	8.0	50	15	20	12	9.5	3.8	.33
14	6.2	9.4	10	10	7.8	60	15	19	12	8.5	3.5	.81
15	6.3	9.2	12	9.5	7.5	70	15	16	11	7.2	4.0	1.8
16	6.6	9.2	12	9.0	7.5	75	16	15	12	6.3	42	2.1
17	6.3	8.9	11	9.2	7.0	70	17	16	13	6.0	21	2.7
18	6.2	8.6	11	9.5	7.5	65	19	16	14	5.4	14	3.8
19	6.0	8.8	11	9.0	8.0	162	22	17	14	4.5	9.7	4.9
20	5.9	9.5	11	9.0	9.0	174	23	16	13	4.6	7.5	4.7
21	7.0	10	11	9.5	10	87	22	15	11	25	5.4	4.0
22	7.2	11	12	9.5	15	56	22	15	11	46	4.3	4.3
23	7.0	12	12	9.5	15	37	22	15	10	52	4.3	4.2
24	7.0	11	12	9.5	12	29	22	15	162	33	3.6	4.0
25	6.9	9.5	11	9.5	10	24	21	15	58	20	3.6	3.8
26	6.9	10	11	9.0	9.0	22	20	28	31	13	3.6	3.3
27	7.0	11	12	9.0	8.0	20	19	25	24	8.5	3.6	2.7
28	7.2	12	12	9.0	7.5	19	22	19	21	6.5	5.6	2.4
29	7.5	12	11	9.0	---	19	28	46	17	7.5	5.7	4.5
30	7.3	11	11	9.5	---	18	31	41	15	8.1	5.9	4.9
31	5.6	---	10	9.5	---	17	---	46	---	9.2	5.2	---
TOTAL	185.1	255.1	308.0	287.2	250.3	1264.0	552	680	677	427.8	240.8	75.53
MEAN	5.97	8.50	9.94	9.26	8.94	40.8	18.4	21.9	22.6	13.8	7.77	2.52
MAX	7.5	12	12	10	15	174	31	46	162	52	42	4.9
MIN	3.3	1.8	6.0	8.0	7.0	7.5	14	15	10	4.5	3.5	.00
AC-FT	367	506	611	570	496	2510	1090	1350	1340	849	478	150

CAL YR 1977 TOTAL 3841.90 MEAN 10.5 MAX 116 MIN .44 AC-FT 7620
WTR YR 1978 TOTAL 5202.83 MEAN 14.3 MAX 174 MIN .00 AC-FT 10320

06446000 WHITE RIVER NEAR OGLALA, SD

LOCATION.--Lat 43°15'17", long 102°49'29", in SW¼NE¼ sec.24, T.38 N., R.47 W., Shannon County, Hydrologic Unit 10140201, on right bank at downstream side of bridge, 3.0 mi (4.8 km) downstream from Blacktail Creek and 7.0 mi (11.3 km) northwest of Oglala.

DRAINAGE AREA.--2,200 mi² (5,700 km²), approximately.

PERIOD OF RECORD.--May 1943 to current year.

GAGE.--Water-stage recorder. Datum of gage is 2,853.54 ft (869.759 m) National Geodetic Vertical Datum of 1929. Prior to May 6, 1947, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Some diversions for irrigation above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 54.4 ft³/s (1.541 m³/s), 39,410 acre-ft/yr (48.6 hm³/yr); median of yearly mean discharges, 46 ft³/s (1.30 m³/s), 33,300 acre-ft/yr (41 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,200 ft³/s (147 m³/s) June 21, 1947, gage height, 23.50 ft (7.163 m), from rating curve extended above 2,800 ft³/s (79.3 m³/s) on basis of velocity-area studies; maximum gage height, 23.61 ft (7.196 m) June 16, 1967; no flow at times in 1952, 1954, 1957, 1961, 1964, 1965, 1970-76.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 800 ft³/s (22.7 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 14	0545	*1520	43.0	*18.16	5.535	Aug. 29	1545	839	23.8	14.11	4.301

Minimum daily discharge, 3.7 ft³/s (0.10 m³/s) Oct. 15.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	7.9	6.5	6.6	5.6	5.4	64	135	130	46	39	49
2	7.0	8.6	6.4	6.4	5.8	5.0	59	115	114	44	45	38
3	8.4	8.7	6.3	6.4	6.0	5.0	54	102	144	63	56	49
4	11	8.9	6.2	6.8	6.2	4.8	50	90	101	45	46	36
5	9.6	9.2	6.2	7.4	6.2	4.6	47	73	75	41	50	33
6	18	9.7	6.2	8.0	6.2	4.8	47	67	70	45	45	27
7	15	9.8	6.2	8.0	6.2	5.1	42	73	68	54	45	15
8	11	9.4	6.2	7.6	6.2	5.2	42	137	67	46	43	12
9	8.5	9.0	6.2	7.2	6.2	18	41	204	64	46	40	9.6
10	7.0	8.4	6.2	7.0	6.0	50	40	207	62	46	38	6.6
11	6.2	8.6	6.4	6.6	6.0	170	48	178	61	43	35	4.6
12	5.6	8.6	6.6	6.4	6.0	500	40	123	58	39	33	4.2
13	4.6	8.1	7.0	6.0	5.8	1200	41	88	55	38	32	4.6
14	4.6	11	8.0	5.8	5.4	1480	43	82	52	38	32	4.6
15	3.7	13	9.2	5.6	5.2	1360	50	75	52	38	33	4.0
16	4.0	12	10	5.4	5.0	1150	70	71	50	38	33	4.4
17	4.3	10	11	5.2	4.8	1070	60	69	57	36	32	4.2
18	9.1	9.0	12	5.0	4.8	885	80	68	57	34	36	4.4
19	11	8.0	13	5.0	4.9	780	170	66	54	34	29	8.4
20	9.5	8.0	14	5.0	5.0	911	140	64	45	33	27	7.8
21	8.3	7.6	15	5.0	5.2	839	90	63	42	35	25	11
22	7.8	7.6	15	5.0	5.4	663	100	66	42	84	22	11
23	7.3	7.6	14	5.0	5.5	422	120	68	42	143	21	8.0
24	7.2	7.6	13	5.0	5.6	271	85	65	41	61	20	11
25	7.1	7.9	12	5.0	5.6	190	62	65	44	53	16	11
26	7.5	7.2	11	5.0	5.6	137	62	88	41	94	16	9.4
27	7.3	7.0	10	5.0	5.6	111	60	70	96	56	13	12
28	8.0	6.8	9.0	5.0	5.6	91	60	69	142	45	23	11
29	7.8	6.7	8.4	5.0	---	85	71	84	62	42	665	12
30	8.4	6.6	7.6	5.2	---	78	98	93	49	40	168	13
31	8.4	---	7.0	5.4	---	73	---	116	---	41	65	---
TOTAL	251.7	258.5	281.8	183.0	157.6	12573.9	2036	2934	2037	1541	1823	435.8
MEAN	8.12	8.62	9.09	5.90	5.63	406	67.9	94.6	67.9	49.7	58.8	14.5
MAX	18	13	15	8.0	6.2	1480	170	207	144	143	665	49
MIN	3.7	6.6	6.2	5.0	4.8	4.6	40	63	41	33	13	4.0
AC-FT	499	513	559	363	313	24940	4040	5820	4040	3060	3620	864

CAL YR 1977 TOTAL 10283.80 MEAN 28.2 MAX 576 MIN .35 AC-FT 20400
WTR YR 1978 TOTAL 24513.30 MEAN 67.2 MAX 1480 MIN 3.7 AC-FT 48620

06447000 WHITE RIVER NEAR KADOKA, SD

LOCATION.--Lat 43°45'09", long 101°31'28", in SE¼SE¼ sec.30, T.3 S., R.22 E., Black Hills meridian, Jackson County, Hydrologic Unit 10140202, near center of span on downstream side of bridge on State Highway 73, 5.0 mi (8.0 km) upstream from Pass Creek, 5.5 mi (8.8 km) downstream from Cottonwood Creek, and 5.8 mi (9.3 km) south of Kadoka.

DRAINAGE AREA.--5,000 mi² (13,000 km²), approximately.

PERIOD OF RECORD.--July 1942 to current year.

REVISED RECORDS.--WSP 1279: 1944(M), 1948.

GAGE.--Water-stage recorder. Datum of gage is 2,122.18 ft (646.840 m) National Geodetic Vertical Datum of 1929. Prior to June 14, 1949, nonrecording gage, and June 14, 1949, to Mar. 8, 1955, water-stage recorder at site 0.3 mi (0.5 km) downstream at same datum. Mar. 9, 1955, to May 17, 1957, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Some diversions above station for irrigation. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--36 years, 280 ft³/s (7.930 m³/s), 202,900 acre-ft/yr (250 hm³/yr); median of yearly mean discharges, 270 ft³/s (7.65 m³/s), 196,000 acre-ft/yr (240 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,700 ft³/s (615 m³/s) June 7, 1951, gage height, 13.83 ft (4.215 m), site then in use, from rating curve extended above 16,000 ft³/s (453 m³/s); no flow at times in many years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 4, 1942, reached a stage of 16.24 ft (4.950 m) from floodmarks, discharge, about 32,000 ft³/s (906 m³/s), from rating curve extended above 16,000 ft³/s (453 m³/s). Floods of Mar. 8, 1905, and in spring of 1927 were 1 or 2 ft (0.3 or 0.6 m) higher than flood of June 4, 1942, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,600 ft³/s (102 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 11	1500	*12000	340	a*14.50	4.420
Mar. 18	1030	3970	112	8.78	2.676
July 22	1900	6560	186	10.28	3.133

a Ice jam.
Minimum daily discharge, 4.8 ft³/s (0.14 m³/s) Feb. 26-28.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	523	25	33	28	10	5.0	313	475	989	73	160	194
2	1110	24	32	28	10	5.0	250	537	461	406	150	336
3	793	27	31	25	10	5.0	220	300	282	128	140	165
4	433	28	30	25	10	5.5	200	248	240	85	120	95
5	180	32	30	25	10	6.0	180	224	224	62	100	75
6	120	31	30	23	9.5	10	160	194	197	75	80	70
7	95	30	30	23	9.5	30	150	230	240	73	73	38
8	86	40	30	22	9.5	80	130	917	180	75	62	37
9	85	317	30	22	9.0	200	120	863	148	70	54	33
10	84	300	30	20	9.0	500	118	568	160	60	51	28
11	83	217	32	20	8.0	2500	120	355	135	57	44	23
12	75	265	35	19	8.0	8000	113	317	113	55	42	23
13	77	280	38	19	7.5	7000	115	300	103	52	38	20
14	75	278	40	19	7.5	5500	113	275	103	73	76	29
15	65	213	40	18	7.0	5020	123	248	95	58	1540	17
16	55	126	38	18	6.5	4300	145	194	84	45	2290	14
17	48	86	38	17	6.5	3460	128	166	93	42	872	15
18	42	66	37	17	6.0	3930	349	155	133	41	280	106
19	40	57	37	16	6.0	3500	806	209	412	38	120	68
20	37	50	36	16	5.5	3100	779	236	291	35	90	57
21	34	40	36	15	5.5	2780	411	155	154	1590	81	33
22	36	35	36	15	5.5	2360	474	115	223	5650	71	32
23	35	33	36	15	5.0	1780	593	205	131	2080	58	27
24	34	32	35	15	5.0	1390	513	183	88	722	139	22
25	33	32	35	14	5.0	1060	336	118	70	500	118	15
26	32	33	35	14	4.8	825	240	115	58	350	65	11
27	27	35	35	13	4.8	696	201	468	58	300	60	8.3
28	30	35	35	12	4.8	624	176	795	56	250	1010	7.4
29	25	33	32	11	---	519	173	1720	56	230	1680	11
30	26	33	32	11	---	438	170	877	60	200	748	7.4
31	27	---	30	10	---	390	---	1260	---	170	248	---
TOTAL	4445	2833	1054	565	205.4	60018.5	7919	13022	5637	13645	10660	1617.1
MEAN	143	94.4	34.0	18.2	7.34	1936	264	420	188	440	344	53.9
MAX	1110	317	40	28	10	8000	806	1720	989	5650	2290	336
MIN	25	24	30	10	4.8	5.0	113	115	56	35	38	7.4
AC-FT	8820	5620	2090	1120	407	119000	15710	25830	11180	27060	21140	3210

CAL YR 1977 TOTAL 119289.00 MEAN 327 MAX 6110 MIN .00 AC-FT 236600
WTR YR 1978 TOTAL 121621.00 MEAN 333 MAX 8000 MIN 4.8 AC-FT 241200

06447500 LITTLE WHITE RIVER NEAR MARTIN, SD

LOCATION.--Lat 43°10'00", long 101°37'47", in NW¼ sec.19, T.37 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on right bank 70 ft (21 m) downstream from highway culvert and 5.4 mi (8.7 km) east of Martin.

DRAINAGE AREA.--310 mi^2 (803 km^2), approximately, of which about 230 mi^2 (596 km^2) probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year. Prior to October 1965, published as South Fork White River near Martin.

GAGE.--Water-stage recorder. Altitude of gage is 3,045 ft (928 m), by barometer. Prior to Aug. 14, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years, 19.7 ft^3/s (0.558 m^3/s), 14,270 acre-ft/yr (17.6 hm^3/s); median of yearly mean discharges, 19 ft^3/s (0.54 m^3/s), 13,800 acre-ft/yr (17 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,190 ft^3/s (33.7 m^3/s) July 19, 1965, gage height, 12.90 ft (3.932 m), from rating curve extended above 340 ft^3/s (9.63 m^3/s) on basis of computation of peak flow through culvert and flow-over-road measurement of peak flow; maximum gage height, 13.21 ft (4.026 m) Mar. 11, 1966 (backwater from ice); minimum daily discharge, 0.6 ft^3/s (0.017 m^3/s) Aug. 14, 16, 18, 1940; no flow for part of each day Oct. 19, 20, 22, 1962, regulation caused by construction work above station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of May 5, 1932, reached a stage of 13.3 ft (4.05 m), from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 550 ft^3/s (15.6 m^3/s) Mar. 12; maximum gage height, 11.16 ft (3.402 m) Mar. 12 (backwater from ice); no other peak above base of 100 ft^3/s (2.83 m^3/s); minimum daily discharge, 6.6 ft^3/s (0.19 m^3/s) Sept. 9, 10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	16	17	9.5	8.0	8.2	46	48	61	11	10	9.7
2	35	16	16	9.8	8.0	8.2	44	51	64	10	11	9.4
3	32	16	16	10	8.0	8.0	42	54	47	11	11	9.4
4	32	16	15	10	8.0	8.0	40	48	37	12	11	9.1
5	30	16	15	10	8.2	8.0	41	41	32	12	12	8.6
6	24	16	11	10	8.2	8.5	40	35	29	11	12	8.0
7	23	16	10	9.5	8.2	9.0	39	34	26	11	12	7.5
8	21	19	11	9.0	8.2	9.5	37	44	24	11	11	6.9
9	20	23	12	8.5	8.5	15	36	57	26	11	11	6.6
10	20	23	13	8.0	8.5	25	36	65	23	11	11	6.6
11	19	32	13	8.5	8.5	100	36	72	20	12	11	6.8
12	19	32	13	8.5	8.5	500	32	60	18	11	10	6.9
13	19	29	12	8.3	8.0	400	33	44	17	11	9.2	7.1
14	19	31	12	8.0	8.0	250	32	36	16	10	8.9	7.2
15	17	32	12	8.0	8.0	190	30	33	14	9.9	9.4	7.4
16	16	31	12	7.5	8.0	180	31	30	14	9.7	9.4	7.5
17	17	29	11	7.5	8.0	163	35	27	14	9.7	12	8.0
18	18	26	11	7.5	8.0	132	39	25	14	9.4	12	8.7
19	18	23	11	7.5	8.2	128	58	23	14	9.2	12	9.5
20	17	19	11	7.5	8.3	126	81	21	14	10	10	9.9
21	17	16	10	7.5	8.5	110	92	20	13	28	11	10
22	17	14	10	7.5	8.5	120	96	20	13	21	12	10
23	17	16	10	7.5	8.5	86	79	20	13	30	12	10
24	17	16	10	7.5	8.5	69	70	18	14	22	13	10
25	17	16	10	7.6	8.5	58	62	18	15	19	12	9.7
26	17	15	9.9	7.8	8.4	52	59	17	13	17	11	9.9
27	16	15	9.8	7.9	8.3	51	49	16	12	15	10	9.7
28	16	15	9.8	8.0	8.3	51	41	21	12	13	10	9.5
29	16	17	9.8	8.0	---	51	38	38	12	11	9.7	9.5
30	16	17	9.8	8.0	---	50	42	54	11	11	10	9.5
31	16	---	9.5	8.0	---	48	---	52	---	11	9.9	---
TOTAL	638	618	362.6	258.4	230.8	3022.4	1436	1142	652	410.9	336.5	258.6
MEAN	20.6	20.6	11.7	8.34	8.24	97.5	47.9	36.8	21.7	13.3	10.9	8.62
MAX	40	32	17	10	8.5	500	96	72	64	30	13	10
MIN	16	14	9.5	7.5	8.0	8.0	30	16	11	9.2	8.9	6.6
AC-FT	1270	1230	719	513	458	5990	2850	2270	1290	815	667	513

CAL YR 1977 TOTAL 8907.5 MEAN 24.4 MAX 319 MIN 4.0 AC-FT 17670
WTR YR 1978 TOTAL 9366.2 MEAN 25.7 MAX 500 MIN 6.6 AC-FT 18580

06448000 LAKE CREEK ABOVE REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°05'07", long 101°36'04", in NE¼ sec.19, T.36 N., R.36 W., Bennett County, Hydrologic Unit 10140203, on left wingwall at upstream side of culvert, 80 ft (24 m) downstream from west boundary of LaCreek game refuge and 7.5 mi (12.1 km) southwest of Tuthill.

DRAINAGE AREA.--58 mi^2 (150 km^2), approximately, of which about 23 mi^2 (60 km^2) probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,090 ft (942 m), by barometer. Prior to Aug. 9, 1938, nonrecording gage and Aug. 9, 1938, to Sept. 30, 1940, water-stage recorder at site 110 ft (34 m) upstream at same datum.

REMARKS.--Records good except those for winter periods, which are poor. A few small diversions for irrigation of hay meadows above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years, 19.6 ft^3/s (0.555 m^3/s), 14,200 acre-ft/yr (17.5 hm^3/yr); median of yearly mean discharges, 20 ft^3/s (0.57 m^3/s), 14,500 acre-ft/yr (18 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 154 ft^3/s (4.36 m^3/s) Mar. 9, 1966, gage height, 2.83 ft (0.863 m); maximum gage height, 3.75 ft (1.143 m) Feb. 12, 1971 (backwater from ice); no flow for part of June 5, 1939.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Feb. 23	0900	ice jam		a*3.39	1.033	Apr. 19	0300	54	1.53	2.23	0.680
Mar. 18	1630	77	2.18	2.54	0.774	May 28	1900	*87	2.46	2.60	0.792

a Maximum observed.
Minimum daily discharge, 13 ft^3/s (0.37 m^3/s) July 13-15, Sept. 5-10.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	40	19	23	18	16	26	24	31	21	15	16	15
2	27	19	27	18	15	26	24	25	20	15	18	14
3	22	19	23	18	16	25	24	22	20	15	18	14
4	20	19	23	19	17	24	23	22	19	14	16	14
5	19	19	23	19	17	25	26	23	19	14	15	13
6	19	19	22	19	17	25	25	23	19	15	15	13
7	19	19	21	18	18	26	23	31	19	16	15	13
8	18	19	20	18	18	26	23	33	18	14	15	13
9	18	19	18	18	18	27	24	28	18	15	15	13
10	19	18	18	17	19	27	25	24	17	15	15	13
11	19	19	20	17	20	28	22	23	18	14	15	14
12	18	20	20	16	20	28	22	24	19	14	14	14
13	18	21	21	16	19	29	21	23	18	13	14	14
14	18	22	21	15	18	30	22	22	16	13	15	15
15	19	22	22	15	18	30	29	21	16	13	18	14
16	19	21	22	15	18	35	32	20	16	14	18	14
17	19	21	21	15	17	55	30	20	24	14	16	16
18	19	20	21	14	19	62	41	22	20	14	17	18
19	19	20	21	14	21	52	48	21	17	14	17	17
20	19	19	20	14	21	44	34	20	16	16	16	16
21	19	18	20	15	23	37	27	20	16	30	16	16
22	18	18	20	15	26	32	36	22	16	39	15	16
23	18	19	20	15	29	28	37	24	19	29	16	15
24	18	20	20	14	29	27	29	20	20	20	16	15
25	19	22	19	14	28	28	26	20	20	16	16	15
26	19	23	19	14	28	29	24	24	18	15	16	14
27	19	23	19	15	27	28	23	23	17	15	16	14
28	20	24	19	15	28	28	25	57	16	14	17	15
29	20	24	19	16	---	26	30	45	15	15	16	16
30	19	24	19	16	---	26	36	30	15	17	16	17
31	19	---	19	17	---	25	---	24	---	16	15	---
TOTAL	616	609	640	499	580	964	835	787	542	513	493	440
MEAN	19.9	20.3	20.6	16.1	20.7	31.1	27.8	25.4	18.1	16.5	15.9	14.7
MAX	40	24	27	19	29	62	48	57	24	39	18	18
MIN	18	18	18	14	15	24	21	20	15	13	14	13
AC-FT	1220	1210	1270	990	1150	1910	1660	1560	1080	1020	978	873

CAL YR 1977 TOTAL 8183 MEAN 22.4 MAX 96 MIN 13 AC-FT 16230
WTR YR 1978 TOTAL 7518 MEAN 20.6 MAX 62 MIN 13 AC-FT 14910

06449000 LAKE CREEK BELOW REFUGE, NEAR TUTHILL, SD

LOCATION.--Lat 43°08'46", long 101°30'38", in SW¼ sec.30, T.37 N., R.35 W., Bennett County, Hydrologic Unit 10140203, on left bank 400 ft (122 m) downstream from east boundary of LaCreek game refuge, 1.2 mi (1.9 km) southwest of Tuthill and 5.5 mi (8.8 km) upstream from mouth.

DRAINAGE AREA.--120 mi^2 (311 km^2), approximately, of which about 60 mi^2 (155 km^2) probably contributes directly to surface runoff.

PERIOD OF RECORD.--February 1938 to September 1940, July 1962 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 3,055 ft (931 m), by barometer. Prior to Aug. 4, 1938, nonrecording gage at same site and datum.

REMARKS.--Records fair. Flow regulated by series of lakes above gage. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--18 years, 15.3 ft^3/s (0.433 m^3/s), 11,080 acre-ft/yr (13.7 hm^3/yr); median of yearly mean discharges, 16 ft^3/s (0.45 m^3/s), 11,600 acre-ft/yr (14 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 178 ft^3/s (5.04 m^3/s) June 18, 1967, gage height, 5.17 ft (1.576 m); maximum gage height, 5.67 ft (1.728 m) Mar. 28, 1975 (backwater from ice); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 84 ft^3/s (2.38 m^3/s) Mar. 28, gage height, 3.97 ft (1.210 m); minimum daily, 0.66 ft^3/s (0.019 m^3/s) Oct. 8.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	4.4	8.3	36	7.5	8.0	71	54	48	17	6.1	4.1
2	1.4	4.2	8.3	36	6.2	34	73	56	46	18	5.7	3.6
3	1.3	4.1	8.5	36	6.1	30	70	54	44	20	6.0	3.0
4	1.1	4.2	8.4	35	6.1	23	66	52	44	20	5.7	2.7
5	1.0	4.0	11	35	6.1	18	69	55	43	16	4.9	2.6
6	1.1	3.6	13	35	11	15	65	55	42	12	4.3	2.2
7	.88	3.6	14	35	9.2	13	55	62	36	12	4.1	3.5
8	.66	2.6	19	35	7.7	12	54	71	32	12	3.5	6.1
9	5.1	3.9	21	31	6.8	12	53	61	30	13	3.2	6.1
10	7.2	3.0	23	27	6.1	11	53	62	26	13	4.1	5.6
11	4.8	6.1	22	26	5.9	11	50	56	24	13	7.1	5.5
12	3.2	6.2	21	24	7.3	12	45	63	21	13	7.0	5.4
13	3.0	6.0	22	24	9.8	13	33	54	19	13	7.2	5.2
14	2.7	4.5	23	23	6.8	13	32	54	18	12	7.1	4.9
15	2.3	3.2	32	23	6.3	13	34	54	18	11	8.4	3.2
16	2.2	2.7	48	22	6.0	16	36	49	16	9.4	4.9	2.0
17	1.9	2.0	48	22	5.9	17	39	44	21	9.7	4.6	1.8
18	1.6	1.8	45	22	5.9	19	43	49	22	11	4.9	1.5
19	1.3	2.9	43	19	6.7	20	40	44	22	9.0	4.7	1.3
20	1.2	9.2	43	17	28	23	39	32	19	7.8	4.4	1.3
21	.91	6.6	39	16	14	24	40	30	19	17	4.5	1.1
22	1.1	8.1	37	16	10	62	42	28	18	23	4.8	1.1
23	2.2	10	36	16	6.9	65	45	26	18	20	5.4	1.0
24	2.6	10	36	15	6.0	65	50	25	19	17	5.0	.94
25	1.9	9.8	36	43	6.0	70	52	24	19	14	4.6	.79
26	4.3	8.6	36	22	5.5	75	54	25	18	11	4.2	.89
27	7.6	7.6	36	8.8	5.5	82	54	25	15	9.2	4.5	1.0
28	7.1	7.3	36	8.3	5.3	83	50	40	14	8.1	4.5	1.0
29	6.7	7.3	36	8.3	---	82	50	48	17	7.0	3.8	.88
30	5.8	7.6	36	8.1	---	81	52	51	19	7.2	3.8	.87
31	4.4	---	36	8.0	---	77	---	52	---	6.8	4.0	---
TOTAL	90.15	165.1	881.5	732.5	220.6	1099.0	1509	1455	767	402.2	157.0	81.17
MEAN	2.91	5.50	28.4	23.6	7.88	35.5	50.3	46.9	25.6	13.0	5.06	2.71
MAX	7.6	10	48	43	28	83	73	71	48	23	8.4	6.1
MIN	.66	1.8	8.3	8.0	5.3	8.0	32	24	14	6.8	3.2	.79
AC-FT	179	327	1750	1450	438	2180	2990	2890	1520	798	311	161

CAL YR 1977 TOTAL 8439.74 MEAN 23.1 MAX 138 MIN .57 AC-FT 16740
WTR YR 1978 TOTAL 7560.22 MEAN 20.7 MAX 83 MIN .66 AC-FT 15000

06449100 LITTLE WHITE RIVER NEAR VETAL, SD

LOCATION.--Lat 43°06'03", long 101°13'49", in NE¼NW¼ sec.17, T.36 N., R.33 W., Bennett County, Hydrologic Unit 10140203, on left bank 120 ft (37 m) downstream from highway bridge, 0.3 mi (0.5 km) downstream from small right-bank tributary, 10.8 mi (17.4 km) southeast of Vetal, and 15.3 mi (24.6 km) upstream from Spring Creek.

DRAINAGE AREA.--590 mi² (1,530 km²), approximately, of which about 415 mi² (1,075 km²) probably contributes directly to surface runoff.

PERIOD OF RECORD.--August 1959 to current year. Prior to October 1965, published as South Fork White River near Vetal.

GAGE.--Water-stage recorder. Datum of gage is 2,780.69 ft (847.554 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 14, 1959, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--19 years, 53.6 ft³/s (1.518 m³/s), 38,830 acre-ft/yr (47.9 hm³/yr); median of yearly mean discharges, 52 ft³/s (1.47 m³/s), 37,700 acre-ft/yr (46 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,330 ft³/s (37.7 m³/s) Mar. 13, 1966, gage height, 7.75 ft (2.362 m); minimum daily, 9.0 ft³/s (0.25 m³/s) Dec. 24, 25, 1974.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft³/s (4.25 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 14	2330	*1170	33.1	*8.07	2.460	Apr. 24	1645	189	5.35	4.65	1.417
Apr. 19	1000	166	4.70	4.47	1.362	May 13	1145	164	4.64	4.57	1.393

Minimum daily discharge, 19 ft³/s (0.54 m³/s) Sept. 27-29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	50	34	47	58	32	20	195	121	113	60	37	26
2	46	34	46	60	32	25	196	121	129	50	37	26
3	39	34	45	60	32	28	194	120	123	43	37	26
4	36	33	43	60	32	30	191	117	121	45	36	24
5	36	33	43	60	32	31	176	113	120	46	36	24
6	37	33	42	60	32	31	149	110	133	46	35	24
7	36	34	41	55	33	32	143	115	133	45	34	23
8	36	38	40	55	34	33	133	120	124	43	32	23
9	35	34	40	53	34	35	126	129	105	42	31	24
10	35	32	45	50	35	35	128	130	101	41	32	26
11	35	40	50	51	35	40	131	122	95	40	33	26
12	35	39	55	52	35	40	137	128	90	39	33	27
13	34	47	60	50	34	100	132	159	86	39	33	27
14	34	62	65	45	33	763	116	142	80	40	33	27
15	34	61	70	43	32	626	114	135	76	39	37	27
16	33	61	70	40	32	486	113	131	74	39	37	27
17	33	61	70	38	31	372	115	128	72	38	32	26
18	33	61	65	35	31	391	129	117	70	47	30	26
19	33	59	65	35	30	434	139	95	70	40	31	23
20	33	50	65	35	30	371	100	92	80	37	31	22
21	33	45	65	35	30	308	91	70	90	55	30	22
22	33	40	65	35	30	266	97	64	70	67	30	21
23	32	43	64	33	31	250	160	63	68	63	31	20
24	32	45	64	33	31	230	185	59	75	57	32	20
25	32	45	63	32	31	203	182	55	65	52	30	20
26	32	47	63	32	30	196	173	60	57	47	30	20
27	31	47	63	32	30	197	149	59	57	44	30	19
28	31	48	63	32	25	196	122	91	60	40	32	19
29	31	48	63	32	---	195	121	132	58	38	32	19
30	31	47	63	32	---	197	123	127	58	38	31	20
31	30	---	60	33	---	197	---	124	---	37	28	---
TOTAL	1071	1335	1763	1356	889	6358	4260	3349	2653	1397	1013	704
MEAN	34.5	44.5	56.9	43.7	31.8	205	142	108	88.4	45.1	32.7	23.5
MAX	50	62	70	60	35	763	196	159	133	67	37	27
MIN	30	32	40	32	25	20	91	55	57	37	28	19
AC-FT	2120	2650	3500	2690	1760	12610	8450	6640	5260	2770	2010	1400

CAL YR 1977 TOTAL 24023 MEAN 65.8 MAX 473 MIN 11 AC-FT 47650
WTR YR 1978 TOTAL 26148 MEAN 71.6 MAX 763 MIN 19 AC-FT 51860

06449500 LITTLE WHITE RIVER NEAR ROSEBUD, SD

LOCATION.--Lat 43°19'32", long 100°53'00", in SW¼NW¼ sec.28, T.39 N., R.30 W., Todd County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 18, 0.3 mi (0.5 km) downstream from Scabby Creek, 0.7 mi (1.1 km) downstream from Soldier Creek, and 6.4 mi (10.3 km) north of Rosebud.

DRAINAGE AREA.--1,020 mi² (2,640 km²), approximately, of which about 760 mi² (1,970 km²) probably contributes directly to surface runoff.

PERIOD OF RECORD.--May 1943 to current year. Prior to October 1965, published as South Fork White River near Rosebud.

REVISED RECORDS.--WSP 1056: 1943, drainage area. WSP 1309: 1946(M).

GAGE.--Water-stage recorder. Datum of gage is 2,294.99 ft (699.513 m) National Geodetic Vertical Datum of 1929. Prior to May 11, 1948, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Some small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--35 years, 111 ft³/s (3.144 m³/s), 80,420 acre-ft/yr (99.2 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 79,700 acre-ft/yr (98 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft³/s (131 m³/s) June 11, 1967, gage height, 14.09 ft (4.295 m), from rating curve extended above 1,300 ft³/s (36.8 m³/s); minimum daily, 10 ft³/s (0.28 m³/s) Jan. 4, 1949, Feb. 20, 1955.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 330 ft³/s (9.34 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 15	0400	1000	28.3	a*9.87	3.008	June 25	1400	365	10.3	4.98	1.518
Mar. 19	0030	*1560	44.2	8.13	2.478	Aug. 11	0930	613	17.4	5.79	1.765
June 22	0830	765	21.7	6.07	1.850						

a Ice jam.
Minimum daily discharge, 60 ft³/s (1.70 m³/s) Sept. 9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	228	86	100	86	70	75	304	216	181	118	82	77
2	150	82	90	88	70	74	307	204	194	156	79	73
3	102	79	90	90	70	72	284	201	181	100	84	71
4	90	77	85	90	70	72	274	194	189	88	81	70
5	83	94	85	90	72	80	262	191	197	126	86	67
6	88	90	80	90	72	85	240	181	191	120	79	64
7	89	86	80	85	72	85	216	201	173	100	74	64
8	84	99	80	85	72	90	214	199	197	82	74	62
9	86	95	75	80	73	100	214	195	171	84	70	60
10	82	85	80	80	75	100	208	190	151	88	73	62
11	81	100	90	80	75	110	197	190	137	86	317	67
12	93	84	100	80	75	120	188	197	126	120	110	67
13	85	84	100	85	75	150	191	234	129	108	110	64
14	82	93	105	85	73	250	190	211	137	112	116	61
15	81	110	105	80	70	700	193	191	133	98	122	61
16	81	112	105	75	70	814	210	184	116	106	97	63
17	80	110	105	75	70	625	209	181	137	100	95	66
18	74	111	100	70	70	963	233	184	112	149	86	76
19	72	114	100	70	72	951	264	163	106	108	84	77
20	75	104	100	65	74	776	247	146	112	112	81	74
21	71	90	100	65	76	580	205	140	124	142	88	71
22	72	73	98	66	78	436	224	126	202	137	86	68
23	68	80	98	66	80	382	241	118	129	104	95	68
24	69	90	95	66	80	386	268	122	131	95	93	65
25	81	95	95	66	80	362	299	131	171	129	86	70
26	83	100	95	68	78	327	276	191	110	110	84	71
27	85	105	95	68	76	324	257	120	122	97	86	64
28	81	110	94	68	75	327	227	142	124	93	95	65
29	121	110	92	69	---	327	213	216	120	95	79	70
30	103	112	90	70	---	331	221	208	112	82	79	79
31	84	---	86	70	---	310	---	214	---	86	80	---
TOTAL	2804	2860	2893	2371	2063	10384	7076	5581	4415	3331	2951	2037
MEAN	90.5	95.3	93.3	76.5	73.7	335	236	180	147	107	95.2	67.9
MAX	228	114	105	90	80	963	307	234	202	156	317	79
MIN	68	73	75	65	70	72	188	118	106	82	70	60
AC-FT	5560	5670	5740	4700	4090	20600	14040	11070	8760	6610	5850	4040

CAL YR 1977 TOTAL 44752 MEAN 123 MAX 634 MIN 40 AC-FT 88770
WTR YR 1978 TOTAL 48766 MEAN 134 MAX 963 MIN 60 AC-FT 96730

06450500 LITTLE WHITE RIVER BELOW WHITE RIVER, SD

LOCATION.--Lat 43°36'04", long 100°44'52", in SW¼NW¼ sec.23, T.42 N., R.29 W., Mellette County, Hydrologic Unit 10140203, on left bank at downstream side of bridge on U.S. Highway 83, 1.3 mi (2.1 km) downstream from Pine Creek and 2.0 mi (3.2 km) north of town of White River.

DRAINAGE AREA.--1,570 mi^2 (4,070 km^2), approximately, of which about 1,310 mi^2 (3,390 km^2) probably contributes directly to surface runoff.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1965, published as South Fork White River below White River.

GAGE.--Water-stage recorder. Datum of gage is 1,912.78 ft (583.015 m) National Geodetic Vertical Datum of 1929. Prior to June 8, 1968, at site 0.8 mi (1.3 km) downstream at datum 4.50 ft (1.372 m) lower.

REMARKS.--Records good except those for winter periods, which are poor. Diurnal fluctuations caused by small powerplant 2.2 mi (3.5 km) upstream. Several small diversions for irrigation and some storage in several small lakes above station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--29 years, 129 ft^3/s (3.653 m^3/s), 93,460 acre-ft/yr (115 hm^3/yr); median of yearly mean discharges, 130 ft^3/s (3.68 m^3/s), 94,200 acre-ft/yr (116 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,700 ft^3/s (388 m^3/s) June 12, 1967, gage height, 10.02 ft (3.054 m), site and datum then in use; maximum gage height, 11.21 ft (3.417 m) June 7, 1968, site and datum then in use; maximum gage height at present site and datum, 15.46 ft (4.712 m) June 7, 1968, from floodmarks; no flow for parts of several days in 1952, 1954, 1956; minimum daily discharge, 7 ft^3/s (0.20 m^3/s) July 31, Aug. 31, Sept. 1, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,500 ft^3/s (156 m^3/s) Mar. 19, gage height, 9.15 ft (2.789 m); maximum gage height, 10.35 ft (3.155 m) Mar. 15 (backwater from ice); minimum daily discharge, 37 ft^3/s (1.05 m^3/s) Aug. 20.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	204	104	110	95	80	90	408	232	237	107	72	60
2	148	80	100	95	80	90	351	219	201	189	68	61
3	118	98	100	97	80	85	351	219	182	124	74	62
4	85	103	95	100	78	85	351	202	167	123	77	62
5	90	106	90	100	77	80	346	202	159	104	76	65
6	92	106	90	100	77	80	331	186	153	110	72	56
7	97	108	85	95	77	80	272	156	150	108	65	53
8	96	151	85	95	78	85	300	186	148	103	66	49
9	90	106	85	95	78	85	262	219	138	92	69	48
10	98	119	80	90	80	90	262	186	125	93	81	50
11	92	99	80	90	83	100	267	198	119	89	363	50
12	105	72	90	90	83	110	236	190	122	78	105	57
13	102	79	100	92	82	200	240	244	134	80	43	61
14	111	90	110	92	82	2000	267	194	140	86	78	66
15	103	95	115	90	80	2500	281	206	148	84	72	60
16	102	93	115	85	80	2000	300	291	126	84	71	63
17	103	93	110	80	80	1330	374	300	137	86	51	76
18	109	94	110	80	80	1100	388	301	159	145	41	86
19	100	88	110	78	80	4110	402	299	129	112	44	78
20	106	76	110	78	82	2980	368	275	121	87	37	67
21	97	75	110	76	85	1790	336	287	126	145	47	59
22	156	75	105	75	87	1360	336	279	242	139	59	64
23	113	76	105	75	90	905	688	279	153	140	62	63
24	117	80	105	75	90	714	432	315	155	96	64	49
25	104	85	105	75	95	492	397	334	139	82	64	51
26	117	90	105	75	95	444	320	326	124	78	65	55
27	123	100	100	75	95	397	300	335	99	77	64	56
28	108	105	100	76	90	462	286	940	96	72	75	51
29	110	110	100	76	---	480	244	1620	96	69	70	48
30	132	115	95	78	---	474	214	519	94	70	74	55
31	99	---	95	78	---	474	---	332	---	75	68	---
TOTAL	3427	2871	3095	2651	2324	25272	9910	10071	4319	3127	2337	1781
MEAN	111	95.7	99.8	85.5	83.0	815	330	325	144	101	75.4	59.4
MAX	204	151	115	100	95	4110	688	1620	242	189	363	86
MIN	85	72	80	75	77	80	214	156	94	69	37	48
AC-FT	6800	5690	6140	5260	4610	50130	19660	19980	8570	6200	4640	3530

CAL YR 1977 TOTAL 57092 MEAN 156 MAX 1310 MIN 40 AC-FT 113200
WTR YR 1978 TOTAL 71185 MEAN 195 MAX 4110 MIN 37 AC-FT 141200

06452000 WHITE RIVER NEAR OACOMA, SD

LOCATION.--Lat 43°44'54", long 99°33'22", in SE¼SW¼ sec.3, T.103 N., R.73 W., Lyman County, Hydrologic Unit 10140204, on left bank at downstream side of bridge on State Highway 47, 1.5 mi (2.4 km) downstream from Wagner Draw, 1.8 mi (2.9 km) upstream from high-water line of Lake Francis Case, and 8.8 mi (14.2 km) southwest of Oacoma.

DRAINAGE AREA.--10,200 mi^2 (26,400 km^2), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to current year.

REVISED RECORDS.--WSP 786: Drainage area. WSP 1309: 1929-30(M).

GAGE.--Water-stage recorder. Datum of gage is 1,377.29 ft (419.798 m) National Geodetic Vertical Datum of 1929. See WSP 1709, 1729, or 1917 for history of changes prior to Feb. 27, 1960.

REMARKS.--Records good except those for winter periods, which are poor. Some diversions for irrigation above station. Corps of Engineers gage-height telemeter at station.

AVERAGE DISCHARGE.--50 years, 533 ft^3/s (15.09 m^3/s), 386,200 acre-ft/yr (476 hm^3/yr); median of yearly mean discharges, 450 ft^3/s (12.7 m^3/s), 326,000 acre-ft/yr (400 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,900 ft^3/s (1,470 m^3/s) Mar. 30, 1952, gage height, 15.40 ft (4.694 m), site and datum then in use; maximum gage height, 23.59 ft (7.190 m) Mar. 14, 1978, ice jam; no flow Aug. 14-28, 1971, July 16-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 5,500 ft^3/s (156 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 14	1000	*25000	708	a*23.59	7.190	June 1	0200	5770	163	7.47	2.277
Mar. 20	1330	23100	654	12.77	3.709	June 24	0200	7930	225	8.34	2.542
Apr. 30	1600	9900	280	8.77	2.673						

a Ice jam.
Minimum daily discharge, 53 ft^3/s (1.50 m^3/s) Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	472	120	85	80	53	55	1310	7010	4120	304	304	739
2	525	137	85	80	55	60	1200	3760	1700	275	252	1110
3	908	130	85	75	55	60	1100	2110	1700	215	226	578
4	3650	125	85	75	55	60	956	1340	1950	175	199	388
5	2320	125	85	75	55	60	904	1140	1170	162	189	263
6	1480	108	80	75	55	60	808	1230	856	186	171	331
7	1010	113	80	75	55	60	718	872	683	255	143	255
8	683	132	80	75	60	70	662	832	608	336	125	186
9	494	159	80	75	60	100	595	824	566	359	102	140
10	374	162	80	70	60	150	572	776	512	327	81	130
11	318	165	85	70	60	500	530	760	461	259	83	120
12	263	195	90	70	60	1000	500	1480	440	215	90	108
13	229	548	95	70	60	7000	483	1420	403	183	75	100
14	209	648	100	70	60	22000	414	956	355	148	195	96
15	202	518	100	70	60	20000	398	824	331	132	259	84
16	205	596	95	70	55	15000	398	746	318	122	205	77
17	192	620	95	70	55	14200	435	683	313	120	151	90
18	177	596	95	70	55	12000	732	627	300	108	1520	108
19	171	512	90	70	55	15500	1410	602	275	100	1790	102
20	162	506	90	70	55	20900	2180	572	263	122	1210	90
21	154	379	90	65	55	17900	3160	518	275	288	669	94
22	154	250	90	65	55	9770	3170	483	409	296	445	79
23	127	150	90	65	60	6180	2210	429	461	490	327	75
24	122	100	90	65	60	4200	2040	429	383	5680	259	130
25	113	85	85	65	60	2980	2140	467	512	3270	209	120
26	110	85	85	60	55	2690	2320	414	489	1990	192	102
27	104	90	85	60	55	2260	1420	414	530	1160	190	90
28	104	90	80	60	55	1950	1220	1720	369	753	189	74
29	102	90	80	60	---	1730	1110	956	309	518	148	67
30	113	90	80	60	---	1600	6590	1180	244	388	168	60
31	115	---	80	55	---	1430	---	4100	---	340	154	---
TOTAL	15362	7624	2695	2135	1593	181525	41685	39674	21305	19276	10320	5986
MEAN	496	254	86.9	68.9	56.9	5856	1390	1280	710	622	333	200
MAX	3650	648	100	80	60	22000	6590	7010	4120	5680	1790	1110
MIN	102	85	80	55	53	55	398	414	244	100	75	60
AC-FT	30470	15120	5350	4230	3160	360100	82680	78690	42260	38230	20470	11870

CAL YR 1977 TOTAL 296726.0 MEAN 813 MAX 9550 MIN 7.0 AC-FT 588600
WTR YR 1978 TOTAL 349180.0 MEAN 957 MAX 22000 MIN 53 AC-FT 692600

06452000 WHITE RIVER NEAR OACOMA, SD--Continued
(National stream-quality accounting network station)
(National pesticide water-monitoring network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1946-53, 1969, 1972 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to September 1976, October 1977 to September 1978.
WATER TEMPERATURES: October 1974 to September 1976.
SUSPENDED SEDIMENT DISCHARGE: October 1971 to September 1976 (discontinued).

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,880 micromhos Sept. 2, 1976; minimum daily, 370 micromhos Mar. 17, 1975.
WATER TEMPERATURES: Maximum daily, 30.0°C July 30, 1975, July 10, 1976; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 72,300 mg/L Apr. 15, 1974; minimum daily mean, 0 mg/L July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.
SEDIMENT LOADS: Maximum daily, 1,220,000 tons (1,110,000 tonnes) May 29, 1973; 0 ton (0 tonne) July 17-23, 1974, Aug. 29 to Sept. 9, Sept. 13, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,150 micromhos Dec. 16; minimum daily, 400 micromhos Oct. 6.

WATER QUALITY DATA. WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (JTU) (00070)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
07...	1310	1020	440	8.6	9.5	14000	--	--	6600	1700	20
NOV											
03...	1030	130	530	8.2	8.0	290	--	--	40	50	100
29...	1300	89	720	7.8	4.0	850	--	10.8	140	520	100
DEC											
22...	1100	88	680	7.8	4.0	35	--	11.8	30	140	150
JAN											
16...	1200	70	615	7.5	.0	40	--	8.0	690	50	170
FEB											
21...	1200	56	510	7.4	.0	20	--	7.7	100	290	140
MAR											
22...	1130	10300	440	7.5	5.0	3800	--	11.4	180	70	95
APR											
20...	1130	2210	850	7.8	4.0	1400	--	10.5	3000	37300	240
MAY											
15...	1145	832	620	8.4	16.0	6400	--	8.4	2000	1850	94
JUN											
07...	1045	704	540	8.3	17.0	9300	--	7.6	5380	2080	38
JUL											
10...	1100	330	550	8.4	20.0	2300	2300	8.2	--	1700	97
AUG											
09...	1030	102	720	8.6	22.0	1700	1700	8.2	2620	3230	47
SEP											
11...	1400	115	620	8.3	24.0	3500	3500	8.0	K10000	6300	26

K Non-ideal colony count.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 07...	0	5.6	1.4	100	90	9.8	3.0	240	2	200
NOV 03...	0	36	3.5	80	61	3.4	4.8	220	0	180
29...	0	36	3.3	120	70	5.1	5.4	320	0	260
DEC 22...	0	51	6.2	80	52	2.8	6.7	280	0	230
JAN 16...	0	54	7.6	67	45	2.3	9.2	300	0	250
FEB 21...	0	51	2.0	43	39	1.6	8.5	240	0	200
MAR 22...	0	31	4.2	53	54	2.4	3.8	120	0	98
APR 20...	97	75	12	80	42	2.3	5.1	170	0	140
MAY 15...	0	31	4.0	100	68	4.5	7.2	220	0	180
JUN 07...	0	13	1.4	110	84	7.7	6.4	220	0	180
JUL 10...	0	32	4.2	82	62	3.6	8.5	--	--	140
AUG 09...	0	16	1.8	130	83	8.2	9.7	--	--	200
SEP 11...	0	9.8	.3	130	89	11	7.2	--	--	210

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 07...	54	4.5	.8	23	294	313	.40	810	.63	--
NOV 03...	82	6.5	.5	39	353	361	.48	124	.04	--
29...	79	8.1	.6	42	472	452	.64	113	1.3	--
DEC 22...	75	6.9	.7	55	424	419	.58	101	1.1	--
JAN 16...	70	5.5	.6	51	421	413	.57	79.6	.76	--
FEB 21...	45	5.3	.5	53	320	327	.44	48.4	.75	.27
MAR 22...	100	3.6	.2	13	282	268	.38	7840	.63	7.1
APR 20...	250	10	.3	15	550	531	.75	3280	.50	5.7
MAY 15...	120	6.9	.6	25	387	403	.53	869	1.2	5.1
JUN 07...	78	5.2	.7	29	348	352	.47	661	1.9	5.7
JUL 10...	140	8.5	.6	25	373	385	.51	332	.84	6.6
AUG 09...	120	8.4	.7	39	512	446	.70	141	.03	2.2
SEP 11...	83	6.3	.8	16	480	380	.65	149	.94	3.5

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT										
07...	--	.08	--	--	--	--	--	--	.03	17
NOV										
03...	--	.09	.20	--	--	--	--	--	.03	.57
29...	--	.02	--	--	--	--	--	--	2.3	3.0
DEC										
22...	--	.04	--	--	--	--	--	--	.15	.20
JAN										
16...	--	.02	.41	--	--	--	--	--	.19	.26
FEB										
21...	.25	.02	.19	.08	--	--	1.0	4.5	.18	.21
MAR										
22...	7.0	.09	.63	6.5	--	--	7.7	34	.13	6.3
APR										
20...	5.6	.08	1.2	4.5	--	--	6.2	27	.07	2.5
MAY										
15...	5.1	.01	.57	4.5	--	--	6.3	28	.03	11
JUN										
07...	5.5	.16	.37	5.3	--	--	7.6	34	.07	8.6
JUL										
10...	6.5	.07	.53	6.1	--	--	7.4	33	.09	3.4
AUG										
09...	1.7	.48	.93	1.3	--	--	2.2	9.9	.03	2.8
SEP										
11...	3.5	.03	.73	2.8	--	--	4.4	20	.11	.12

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
NOV										
03...	1030	--	--	6.0	--	--	--	876	307	76
29...	1300	--	--	--	14	--	--	2450	523	98
DEC										
22...	1100	--	--	5.9	--	--	--	182	39	91
FEB										
21...	1200	--	--	4.1	--	--	--	--	--	--
MAR										
22...	1130	--	--	22	860	--	--	19000	528000	92
MAY										
15...	1145	--	--	9.6	4700	--	--	14000	31400	99
JUN										
07...	1045	--	--	20	1100	1.26	1.10	18800	35700	100
AUG										
09...	1030	--	--	15	--	--	--	3720	1020	100
SEP										
11...	1400	--	--	13	--	--	--	--	--	--

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 03...	1030	14	2	12	<10	<8	2	20	15	5	<50
JAN 16...	1200	13	1	12	1	0	1	10	0	10	0
APR 20...	1130	10	9	1	1	0	5	50	50	0	25
JUL 10...	1100	8	0	10	0	0	1	50	50	0	16

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV 03...	<50	0	10	6	4	18000	30	<100	<88	12	350
JAN 16...	0	0	7	3	4	1500	30	7	6	1	50
APR 20...	24	1	100	96	4	61000	40	68	2	66	4800
JUL 10...	14	2	95	90	5	55000	40	57	22	35	2400

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 03...	350	0	.0	.0	.0	1	0	2	60	50	6
JAN 16...	50	0	.0	.0	.0	2	1	1	20	10	10
APR 20...	4800	0	.0	.0	.0	5	5	0	330	330	0
JUL 10...	2400	0	.2	.2	.0	4	2	2	260	260	0

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
SEP						
11...	1300	122	24.0	8.0	--	8.4
11...	1500	122	25.0	8.0	--	--
11...	1700	122	24.0	8.0	--	--
11...	1900	120	23.0	8.2	--	--
11...	2100	120	22.0	8.2	--	--
11...	2300	118	21.0	8.5	--	--
12...	0100	115	20.0	8.6	--	--
12...	0300	115	20.0	8.4	--	--
12...	0500	113	20.0	8.3	--	--
12...	0700	113	19.0	8.5	--	--
12...	0900	110	19.0	8.5	--	--
12...	1100	110	21.0	8.5	--	--
12...	1200	108	21.0	8.5	--	--
12...	1230	108	22.0	8.5	--	8.4

< Less than.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
NOV 29...	1300	ND	--	ND	--	ND	--	ND	--	ND
MAR 22...	1130	ND	--	ND	--	ND	--	ND	--	ND
APR 20...	1130	ND	--	ND	--	ND	--	ND	--	ND

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)
NOV 29...	--	ND	--	ND	--	ND	--	ND	--	ND
MAR 22...	--	ND	--	ND	--	ND	--	ND	--	ND
APR 20...	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)
NOV 29...	--	ND	--	ND	--	ND	--	ND	--	ND
MAR 22...	--	ND	--	ND	--	ND	--	ND	--	ND
APR 20...	--	ND	--	ND	--	ND	--	ND	--	ND

DATE	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COULSON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)
NOV 29...	--	ND	--	ND	--	ND	--	ND	--	ND
MAR 22...	--	ND	--	ND	--	ND	--	ND	--	ND
APR 20...	--	ND	--	ND	--	--	--	ND	--	ND

DATE	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
NOV 29...	--	ND	--	ND	--	ND	--	ND	--
MAR 22...	--	ND	--	ND	--	ND	--	ND	--
APR 20...	--	--	--	--	--	--	--	--	--

ND Not detected.

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	510	520	580	740	700	580	530	650	620	570	520	540
2	480	510	560	700	610	610	520	630	640	650	520	580
3	420	530	550	640	610	590	550	680	540	770	530	550
4	490	490	540	610	640	580	560	730	540	700	550	520
5	400	480	520	560	620	550	560	750	520	680	560	510
6	400	490	540	540	610	540	570	740	520	610	560	510
7	440	500	552	540	580	540	580	740	540	610	560	500
8	450	450	560	550	640	550	580	730	560	610	590	510
9	450	490	690	560	650	540	600	700	550	680	720	520
10	460	520	680	540	540	640	600	730	570	550	650	550
11	460	490	700	560	530	470	610	740	600	660	650	620
12	460	490	760	540	520	500	620	730	610	570	720	690
13	460	500	890	540	510	570	620	700	610	660	800	940
14	460	540	950	560	510	500	630	650	660	640	880	960
15	450	460	1130	560	490	400	630	600	650	670	560	960
16	450	460	1150	580	615	420	650	590	670	660	470	740
17	450	470	1060	600	480	440	670	590	670	660	500	700
18	440	470	800	610	480	440	870	610	660	680	540	620
19	480	460	790	600	500	500	960	620	650	670	600	610
20	480	500	700	590	510	530	850	650	660	680	550	750
21	480	540	660	580	510	480	700	670	690	750	490	600
22	490	540	680	600	480	440	660	690	780	770	490	580
23	500	540	550	620	490	500	650	620	690	700	490	680
24	500	560	570	640	500	450	620	730	640	620	500	700
25	510	600	600	620	570	440	640	700	620	590	500	710
26	510	660	650	600	580	450	620	700	600	550	500	820
27	510	680	670	610	580	450	620	670	560	530	500	1010
28	500	680	720	610	590	480	580	680	620	530	490	920
29	520	720	720	600	---	510	570	750	610	520	500	760
30	530	640	710	580	---	520	600	800	580	520	520	610
31	540	---	760	580	---	520	---	660	---	520	480	---
MEAN	474	533	709	592	559	507	634	685	614	632	564	676

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10.0	5.0	.0	---	.0	.0	10.0	11.0	15.0	---	21.0	21.0
2	---	3.0	.0	---	.0	.0	---	12.0	15.0	---	19.0	21.0
3	9.0	8.0	.0	.0	.0	.0	9.0	12.0	17.0	---	16.0	---
4	11.0	4.0	---	.0	.0	.0	8.0	11.0	---	---	17.0	---
5	9.0	6.0	.0	.0	---	---	9.0	12.0	19.0	---	18.0	24.0
6	9.0	---	.0	.0	.0	.0	10.0	12.0	19.0	---	---	22.0
7	9.5	10.0	.0	.0	.0	.0	9.0	---	17.0	---	24.0	22.0
8	6.0	7.0	.0	---	.0	.0	8.0	9.0	16.0	---	23.0	21.0
9	---	3.0	.0	.0	.0	.0	---	10.0	19.0	---	22.0	21.0
10	---	.0	.0	.0	.0	.0	8.0	12.0	21.0	20.0	22.0	---
11	4.0	1.0	---	.0	.0	.0	7.0	15.0	---	---	24.0	24.0
12	3.0	.0	.0	.0	---	---	9.0	14.0	18.0	---	25.0	19.0
13	5.0	---	.0	.0	.0	.0	7.0	12.0	20.0	---	---	15.0
14	9.0	2.0	.0	.0	.0	---	8.0	---	21.0	---	26.0	16.0
15	5.0	4.0	.0	---	.0	.0	7.0	16.0	23.0	---	21.0	17.0
16	---	2.0	.0	.0	.0	---	---	16.0	22.0	---	21.0	18.0
17	8.0	1.0	.0	.0	.0	.0	6.0	16.0	22.0	26.0	24.0	---
18	6.0	1.0	---	.0	.0	1.0	4.0	12.0	---	23.0	20.0	14.0
19	6.0	1.0	.0	.0	---	---	4.0	15.0	20.0	22.0	18.0	12.0
20	9.0	---	---	.0	.0	2.0	4.0	15.0	17.0	20.0	---	12.0
21	9.0	.0	.0	.0	.0	1.0	5.0	---	18.0	21.0	21.0	13.0
22	8.0	.0	.0	---	.0	5.0	6.0	19.0	18.0	20.0	22.0	14.0
23	---	.0	.0	.0	.0	5.0	---	20.0	22.0	---	24.0	11.0
24	---	---	.0	.0	.0	3.0	7.0	20.0	23.0	22.0	23.0	---
25	7.0	.0	---	---	.0	4.0	8.0	21.0	---	23.0	24.0	16.0
26	8.0	.0	---	.0	---	---	10.0	21.0	21.0	24.0	22.0	17.0
27	8.0	---	.0	.0	.0	7.0	12.0	20.0	22.0	23.0	---	15.0
28	9.0	.0	.0	.0	.0	8.0	12.0	---	24.0	24.0	20.0	15.0
29	9.0	4.0	.0	---	---	9.0	12.0	---	27.0	24.0	19.0	12.0
30	---	.0	.0	.0	---	10.0	---	16.0	26.0	---	20.0	10.0
31	8.0	---	.0	.0	---	12.0	---	16.0	---	20.0	20.0	---
MEAN	7.5	2.5	.0	.0	.0	2.5	8.0	15.0	20.0	22.5	21.5	17.0

06452000 WHITE RIVER NEAR OACOMA, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 9.77	NOV 29.77	MAR 22.78	MAY 15.78	JUN 7.78	JUL 10.78
TIME	1130	1300	1130	1145	1045	1100
TOTAL CELLS/ML	77000	14	860	4700	1100	12000
DIVERSITY: DIVISION	0.5	0.0	0.0	1.0	0.7	1.0
.CLASS	0.5	0.0	0.0	1.0	0.7	1.0
..ORDER	0.6	0.0	0.0	1.0	0.7	1.1
...FAMILY	1.9	0.0	0.0	1.4	0.9	2.3
....GENUS	1.9	0.0	0.0	1.4	0.9	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)												
.CHLOROPHYCEAE												
..CHLOROCOCCALES												
...COELASTRACEAE												
....COELASTRUM	8600	11	--	-	--	-	--	-	--	-	400	3
...HYDRODICTYACEAE												
....PEDIASTRUM	33000#	43	--	-	--	-	--	-	--	-	--	-
...OOCYSTACEAE												
....ANKISTRODESMUS	--	-	--	-	--	-	--	-	--	-	*	0
....OOCYSTIS	--	-	--	-	--	-	--	-	--	-	570	5
...SCENEDESMACEAE												
....SCENEDESMUS	29000#	37	--	-	--	-	2700#	57	--	-	1500	12
..TETRASPORALES												
...PALMELLACEAE												
....SPHAEROCYSTIS	--	-	--	-	--	-	--	-	910#	80	--	-
..VOLVOCALES												
...PHACOTACEAE												
....PHACOTUS	--	-	--	-	--	-	--	-	--	-	*	0
CHRYSOPHYTA												
.BACILLARIOPHYCEAE												
..CENTRALES												
...COSCINODISCACEAE												
....CYCLOTELLA	--	-	--	-	--	-	--	-	--	-	*	0
....MELOSIRA	1400	2	--	-	--	-	--	-	--	-	--	-
..PENNALES												
...CYMBELLACEAE												
....CYMBELLA	--	-	--	-	--	-	--	-	--	-	170	1
....EPITHEMIA	--	-	--	-	--	-	--	-	110	10	--	-
....RHOPALODIA	--	-	--	-	--	-	--	-	--	-	*	0
...FRAGILARIACEAE												
....SYNEDRA	--	-	--	-	--	-	--	-	110	10	*	0
...GOMPHONEMATACEAE												
....GOMPHONEMA	--	-	--	-	--	-	680	14	--	-	--	-
...NAVICULACEAE												
....AMPHIPLEURA	--	-	--	-	--	-	--	-	--	-	*	0
....CALONEIS	--	-	--	-	--	-	--	-	--	-	*	0
....NAVICULA	--	-	14#	100	860#	100	--	-	--	-	*	0
....PINNULARIA	--	-	--	-	--	-	--	-	--	-	*	0
...NITZSCHIACEAE												
....NITZSCHIA	4300	6	--	-	--	-	1400#	29	--	-	*	0
CYANOPHYTA (BLUE-GREEN ALGAE)												
.CYANOPHYCEAE												
..HORMOGONALES												
...NOSTOCACEAE												
....ANABAENA	--	-	--	-	--	-	--	-	--	-	6000#	48
...OSCILLATORIACEAE												
....OSCILLATORIA	--	-	--	-	--	-	--	-	--	-	570	5
...SCYTONEMATACEAE												
....PLECTONEMA	--	-	--	-	--	-	--	-	--	-	2600#	21
EUGLENOPHYTA (EUGLENOIDS)												
.CRYPTOPHYCEAE												
..CRYPTOMONIDALES												
...CRYPTOMONODACEAE												
....CRYPTOMONAS	1400	2	--	-	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06452500 LAKE FRANCIS CASE AT PICKSTOWN, SD

LOCATION.--Lat 43°04'05", long 98°33'15", in SE¼ sec.5, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10140101, in tower 6 of outlet works at Fort Randall Dam, on Missouri River at Pickstown, 1.0 mi (1.6 km) upstream from Randall Creek, and at mile 880.0 (1,415.9 km).

DRAINAGE AREA.--263,500 mi² (682,500 km²), approximately.

PERIOD OF RECORD.--December 1952 to current year (monthend contents only). Prior to October 1964, published as Fort Randall Reservoir at Pickstown.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Mar. 25, 1953, elevations determined from temporary nonrecording gages.

REMARKS.--Reservoir is formed by earthfill dam; storage began in December 1952; initial closure made July 1952. Maximum capacity, 5,816,000 acre-ft (7,170 hm³) below elevation 1,375.0 ft (419.10 m), top of spillway gates. Normal maximum, 4,834,000 acre-ft (5,960 hm³) below elevation 1,365.0 ft (416.05 m). Inactive storage, 1,336,000 acre-ft (1,650 hm³) below elevation 1,310.0 ft (399.29 m). No dead storage; elevation of invert of lowest outlet is 1,227.0 ft (373.99 m). Figures given herein represent elevations at outlet works and total contents adjusted for wind effect.

The spillway consists of 21 taintor gates, each 40 ft (12.2 m) wide by 29 ft (8.8 m) high; spillway capacity, 490,000 ft³/s (13,900 m³/s) at pool elevation 1,375 ft (419.10 m). Crest of spillway is at elevation 1,346 ft (410.26 m). Normal releases are through 12 tunnels 22 ft (6.7 m) in diameter. Installation of power units in 8 of these tunnels was completed in January 1956; maximum release through power tunnels is 46,000 ft³/s (1,300 m³/s); maximum release through 4 other tunnels is 130,000 ft³/s (3,680 m³/s) at pool elevation 1,375 ft (419.10 m). Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 5,087,000 acre-ft (6,270 hm³) June 20, 1962, elevation, 1,364.2 ft (415.81 m), affected by wind; minimum since initial filling, 1,450,000 acre-ft (1,790 hm³) Oct. 23, 1956, elevation, 1,311.5 ft (399.75 m), affected by wind.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 4,370,000 acre-ft (5,390 hm³) Mar. 26; elevation, 1,362.4 ft (415.26 m); maximum elevation, 1,362.5 ft (415.29 m) Apr. 11; minimum contents, 2,524,000 acre-ft (3,110 hm³) Nov. 27; elevation, 1,338.6 ft (408.01 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	1351.2	3426000	
Oct. 31	1343.1	2829000	-597000
Nov. 30	1340.3	2613000	-216000
Dec. 31	1345.8	3010000	+397000
CAL YR 1977			+333000
Jan. 31	1350.3	3318000	+308000
Feb. 28	1351.3	3406000	+88000
Mar. 31	1362.2	4355000	+949000
Apr. 30	1360.7	4207000	-148000
May 31	1359.0	4049000	-158000
June 30	1359.3	4067000	+18000
July 31	1358.4	3982000	-85000
Aug. 31	1356.2	3812000	-170000
Sept. 30	1354.0	3620000	-192000
WTR YR 1978			+194000

NOTE.--Reservoir frozen over Dec. 24 to Apr. 3. New capacity table put into use Jan. 1; contents on Dec. 31 by new capacity table, 2,982,000 acre-ft.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD

LOCATION.--Lat 43°03'54", long 98°33'11", in NW¼NE¼ sec.8, T.95 N., R.65 W., Charles Mix County, Hydrologic Unit 10170101, in powerhouse of Fort Randall Dam on Missouri River at Pickstown, 0.8 mi (1.3 km) upstream from Randall Creek, and at mile 879.8 (1,415.6 km).

DRAINAGE AREA.--263,500 mi² (682,500 km²), approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1947 to current year. Prior to October 1969 published as "below Fort Randall Dam".

GAGE.--Totalizing flowmeters on each turbine in Fort Randall powerhouse. Prior to Nov. 10, 1965, water-stage recorder at site 7.0 mi (11.3 km) downstream at datum 1,230.00 ft (374.904 m) National Geodetic Vertical Datum of 1929 and Nov. 10, 1965, to June 30, 1969, at datum 5.00 ft (1.524 m) lower (Corps of Engineers bench mark).

REMARKS.--Records good. Flow completely regulated by Lake Francis Case (see station 06452500). Many diversions for irrigation above station.

COOPERATION.--Daily discharge determined from flow through turbines furnished by Corps of Engineers.

AVERAGE DISCHARGE.--31 years, 27,170 ft³/s (769.5 m³/s), 18,226,000 acre-ft/yr (22.5 km³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 447,000 ft³/s (12,700 m³/s) Apr. 12, 1952; maximum gage height, 20.82 ft (6.346 m) Apr. 12, 1952 (site and datum then in use); minimum daily discharge, 100 ft³/s (2.83 m³/s) Mar. 29, 1962.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in April 1943 reached a stage of about 16.5 ft (5.03 m). Maximum stage known, in April 1881, was about 5 ft (1.5 m) higher than that of April 1943, both at site 7.0 mi (11.3 km) downstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge during year, 51,700 ft³/s (1,460 m³/s) Sept. 29; minimum daily, 800 ft³/s (22.7 m³/s) Mar. 24, 25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	23600	27100	8000	10800	15000	16700	18700	19500	29600	41900	46100	51500
2	26300	26400	7300	14500	14800	15600	11600	19700	31200	40600	48500	51600
3	26600	25200	8200	14400	14300	15300	18900	18500	33100	40700	50100	51400
4	27500	25900	8500	12900	9400	15300	18300	18200	31200	40900	50100	51400
5	27000	29000	12400	10700	5300	8900	18500	20800	33500	42400	50000	51600
6	27200	20600	14200	10600	14300	17000	18800	23100	37700	28200	50400	51600
7	27700	29300	15200	10500	14100	15000	18700	19600	37900	28800	51600	51400
8	25300	29300	19900	11800	15000	11800	17200	22600	35800	29600	51400	51600
9	26000	25400	18200	16600	15000	11700	11900	24000	35700	38300	50900	51600
10	27100	24900	17900	17100	15300	12400	14900	24000	35800	41400	50900	51600
11	27700	24500	14600	14900	11400	12800	12600	23900	34500	42300	50900	51600
12	27700	24400	15400	15000	10400	12900	13300	23500	37400	46200	51000	51500
13	28000	23700	14000	14600	13700	15700	17600	24900	38600	46100	50900	51600
14	28100	28400	11200	12800	13800	12000	18500	21700	38200	46100	51100	51000
15	30000	29400	10100	10400	13300	9100	20000	24100	40800	45800	51100	49700
16	29200	27800	10300	13900	12700	6200	18400	22500	40400	45700	50400	49400
17	26500	30000	10100	15900	13000	5000	23800	23200	34700	46000	50200	49200
18	28400	29600	8300	13600	10300	4000	23800	24400	34700	46100	49900	48900
19	28300	28700	10400	15600	7800	1100	19000	22800	37500	46100	49600	49000
20	28900	28300	12700	15500	12600	900	15900	25100	38300	46100	49700	49000
21	30800	26200	17100	12700	12400	900	12100	23100	37900	46200	49700	49000
22	30000	26800	18900	9500	12000	900	16800	26000	40200	44800	50300	49700
23	27000	22600	19300	14200	11700	900	13700	26400	42100	42500	50600	50500
24	26300	19300	12700	8000	11800	800	19300	29000	42100	41000	50700	50500
25	30200	19600	5900	12500	10700	800	21000	31500	37800	46000	50700	50600
26	27800	16000	16200	18700	8800	5200	20300	35200	42100	46000	50600	51100
27	27700	13300	18400	18000	12700	11100	20800	34500	37200	46000	50600	51100
28	27900	10400	18000	15900	15500	15900	20600	31400	37100	46000	50700	51300
29	27200	7900	15800	12900	---	20700	19000	33300	40100	46100	51300	51700
30	27500	7700	13100	18700	---	19400	14500	27700	39600	46100	51500	51300
31	26500	---	13100	16900	---	18500	---	30300	---	46100	51300	---
TOTAL	856000	707700	415400	430100	347100	314500	528500	774500	1112800	1326100	1562800	1523000
MEAN	27610	23590	13400	13870	12400	10150	17620	24980	37090	42780	50410	50770
MAX	30800	30000	19900	18700	15500	20700	23800	35200	42100	46200	51600	51700
MIN	23600	7700	5900	8000	5300	800	11600	18200	29600	28200	46100	48900
AC-FT	1698000	1404000	823900	853100	688500	623800	1048000	1536000	2207000	2630000	3100000	3021000

CAL YR 1977 TOTAL 8593100 MEAN 23540 MAX 41700 MIN 5900 AC-FT 17040000
WTR YR 1978 TOTAL 9898500 MEAN 27120 MAX 51700 MIN 800 AC-FT 19630000

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.
DISSOLVED OXYGEN: October 1974 to current year.

INSTRUMENTATION.--Water-quality monitor since June 1973.

REMARKS.--Water is supplied to the monitor from the raw water intake located in the penstocks. This location is 121 ft (37 m) below the normal pool surface. Depth of observation is 1,227 ft (374 m) above mean sea level. Records prior to October 1974 are on file in the District office, Corps of Engineers, Omaha, NE. In addition to the water-quality monitor, samples were collected once a month.

COOPERATION.--Records of specific conductance, water temperature, dissolved oxygen and pH were furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily mean, 850 micromhos Mar. 10, 1975; minimum daily mean, 606 micromhos Dec. 7, 1976.
WATER TEMPERATURES: Maximum daily mean, 25.5°C Aug. 9, 12-16, 25, 1975, July 31 to Aug. 2, Aug. 5, 10, 1977, Aug. 25, 1978; minimum daily mean, 0.0°C Jan. 21-26, 1975.
DISSOLVED OXYGEN: Maximum daily mean, 13.2 mg/L Jan. 2, 3, Feb. 5-11, 14-21, 1975; minimum daily mean, 6.7 mg/L Aug. 6, 8, 1977.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily mean, 762 micromhos Apr. 22; minimum daily mean, 611 micromhos Nov. 24.
WATER TEMPERATURES: Maximum daily mean, 25.5°C Aug. 25; minimum daily mean, 0.5°C on many days during February to March.
DISSOLVED OXYGEN: Maximum daily mean, 13.8 mg/L Apr. 22; minimum daily mean, 7.2 mg/L July 28.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 27...	1400	39000	730	8.0	14.0	3	--	10.0	K1	5	240
NOV 30...	1100	12400	750	8.1	5.0	9	--	11.7	K2	K2	250
DEC 29...	1500	12700	680	8.2	.5	4	--	--	ND	K1	250
JAN 30...	1500	15800	670	7.9	.5	2	--	--	ND	ND	250
FEB 27...	1500	15400	720	7.9	.5	2	--	13.9	ND	K1	260
MAR 16...	1100	18300	780	7.9	1.5	1	--	13.5	ND	ND	210
APR 27...	1600	31100	750	8.1	5.0	55	--	13.0	ND	K1	260
MAY 31...	1200	40200	600	8.0	11.5	--	2.2	13.0	--	--	220
JUN 21...	1100	41300	660	7.9	16.5	--	2.4	10.7	K2	K1	220
JUL 11...	1100	43000	670	7.9	20.0	--	5.4	7.1	K1	K1	230
AUG 29...	1500	51300	1000	7.9	24.5	--	3.2	8.0	K5	K20	250
SEP 25...	1100	50200	750	8.0	21.0	--	2.1	9.8	K2	K2	250

K Non-ideal colony count.
ND Not detected.

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	HARD- NESS, NONCAR- BONATE (MG/L CACO3) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)
OCT 27...	86	59	23	65	36	1.8	4.8	190	0	160
NOV 30...	95	64	22	64	35	1.8	5.1	190	0	160
DEC 29...	100	62	23	75	39	2.1	4.9	180	0	148
JAN 30...	89	65	22	68	36	1.9	4.8	200	0	160
FEB 27...	95	64	24	67	36	1.8	4.6	200	0	160
MAR 16...	44	65	11	70	42	2.1	4.9	200	0	160
APR 27...	93	65	23	66	35	1.8	5.2	200	0	160
MAY 31...	72	56	20	64	38	1.9	5.1	--	--	150
JUN 21...	76	55	19	62	38	1.8	5.4	--	--	140
JUL 11...	87	58	20	65	38	1.9	5.5	--	--	140
AUG 29...	97	61	23	65	36	1.8	5.2	--	--	150
SEP 25...	110	66	21	70	37	1.9	4.5	--	--	140

DATE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 27...	210	10	.6	8.3	476	474	.65	50100	.05	--
NOV 30...	200	11	.6	8.3	505	469	.69	16900	.09	--
DEC 29...	220	12	.6	7.8	476	494	.65	16300	.05	--
JAN 30...	210	10	.6	7.1	488	486	.66	20800	.02	.41
FEB 27...	210	14	.4	4.0	483	487	.66	20100	.06	.15
MAR 16...	190	10	.3	2.9	473	453	.64	23400	.01	.15
APR 27...	190	11	.2	7.6	479	467	.65	40200	.12	.44
MAY 31...	190	9.2	.5	5.8	440	441	.60	47800	.10	--
JUN 21...	190	9.3	.5	5.5	430	431	.58	47900	.11	.35
JUL 11...	200	9.6	.5	3.6	444	447	.60	51500	.11	.30
AUG 29...	220	10	.5	8.1	461	483	.63	63900	.11	.42
SEP 25...	230	12	.5	8.0	499	496	.68	67600	.12	.28

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT 27...	--	.01	.20	--	--	--	--	--	.01	.02
NOV 30...	--	.07	.18	--	--	--	--	--	.00	.00
DEC 29...	--	.08	--	--	--	--	--	--	--	--
JAN 30...	.38	.03	.37	.04	--	--	.43	1.9	.01	.21
FEB 27...	.11	.04	.12	.03	--	--	.21	.93	.01	.02
MAR 16...	.14	.01	.01	.14	--	--	.16	.71	.00	.00
APR 27...	.36	.08	.35	.09	--	--	.56	2.5	.00	.05
MAY 31...	--	.01	.50	--	--	--	--	--	.01	.03
JUN 21...	.34	.01	.30	.05	--	--	.46	2.0	.03	.03
JUL 11...	.30	.00	.33	.00	--	--	.41	1.8	.01	.02
AUG 29...	.41	.01	.35	.07	--	--	.53	2.3	.01	.02
SEP 25...	.27	.01	.34	.00	--	--	.40	1.8	.01	.02

DATE	TIME	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 27...	1400	--	--	2.7	--	--	--	102	10700	95
NOV 30...	1100	2.9	--	3.0	120	--	--	100	3350	93
DEC 29...	1500	--	--	3.4	--	--	--	92	3150	97
FEB 27...	1500	--	--	3.0	--	--	--	73	3040	94
MAR 16...	1100	--	--	4.9	--	--	--	71	3510	95
MAY 31...	1200	--	--	5.3	310	--	--	39	4230	97
JUN 21...	1100	--	--	4.1	670	--	--	71	7920	97
AUG 29...	1500	--	--	3.6	--	--	--	56	7760	95
SEP 25...	1100	--	--	4.5	--	--	--	--	--	--

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV											
30...	1100	--	--	3	0	0	0	0	0	0	0
JAN											
30...	1500	3	1	2	1	1	0	10	10	0	0
APR											
27...	1600	4	3	1	1	1	0	0	0	0	0
JUL											
11...	1100	1	0	1	10	7	3	0	0	0	3

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	711	655	640	715	719	735	740	723	684	663	710	716
2	708	657	639	719	723	738	738	723	682	665	711	717
3	707	653	642	722	723	741	740	718	685	664	712	714
4	703	653	642	717	719	743	739	717	688	661	713	713
5	703	652	644	718	723	740	738	715	687	663	716	714
6	698	651	647	723	727	737	741	720	675	664	713	721
7	697	655	645	723	722	735	739	717	677	665	718	721
8	696	654	653	726	717	739	744	720	675	663	716	723
9	694	653	660	717	726	738	740	712	672	665	715	725
10	693	650	665	719	730	740	739	716	670	664	717	727
11	685	648	664	715	733	745	739	715	671	663	722	730
12	679	650	676	718	733	744	740	709	675	665	719	732
13	674	651	685	721	727	744	739	713	662	664	715	734
14	670	644	696	720	734	746	739	715	665	665	720	737
15	673	648	697	719	728	746	731	708	660	665	719	740
16	669	638	701	721	729	745	731	703	660	664	718	736
17	671	638	702	724	729	755	743	709	661	664	721	735
18	672	627	705	723	730	745	745	708	665	667	715	741
19	667	627	710	715	728	747	750	712	663	666	712	745
20	667	623	710	727	729	749	753	714	663	663	718	746
21	667	620	714	723	732	751	759	706	659	670	714	748
22	667	620	709	713	727	752	762	704	665	670	720	745
23	666	615	713	715	722	747	750	710	659	674	714	741
24	666	611	718	715	726	744	751	708	662	680	713	743
25	661	612	720	721	732	745	752	695	659	687	718	744
26	659	619	721	722	732	745	761	709	660	690	714	739
27	658	616	721	724	732	747	744	695	663	691	711	735
28	658	613	718	719	734	746	727	702	664	695	707	732
29	658	627	713	724	---	740	723	696	664	700	710	731
30	657	637	719	726	---	738	723	693	660	702	714	730
31	652	---	721	723	---	740	---	694	---	708	715	---
MEAN	678	637	687	720	727	743	742	710	669	673	715	732

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 30...	60	40	--	--	.0	--	--	2	0	0	10
JAN 30...	20	20	.0	.0	.0	2	0	2	20	20	0
APR 27...	70	20	.0	.0	.0	1	0	1	10	0	20
JUL 11...	20	50	.0	.0	.0	0	0	0	10	0	10

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19.5	4.5	3.0	2.0	1.5	.5	2.0	3.5	12.0	17.5	24.0	24.0
2	19.5	4.5	3.0	2.0	1.5	1.0	2.0	3.5	12.0	16.5	24.5	24.0
3	18.5	4.0	2.5	2.0	1.0	.5	2.5	4.0	12.5	17.0	24.5	24.0
4	17.5	4.0	2.5	1.5	1.5	.5	2.5	4.0	12.5	17.5	24.5	24.0
5	17.0	3.5	2.5	1.5	1.5	.5	2.5	4.0	12.5	17.5	24.5	24.0
6	16.5	3.5	2.5	1.5	1.5	.5	2.5	4.5	13.0	17.5	24.5	23.5
7	16.0	3.5	2.5	1.5	1.0	.5	2.5	4.5	13.0	18.0	24.5	23.5
8	16.0	3.0	2.5	2.0	1.0	1.0	2.5	5.0	13.5	18.0	25.0	24.0
9	15.0	3.0	2.5	1.5	1.0	.5	2.5	5.5	13.0	18.0	25.0	23.5
10	14.5	2.5	3.0	2.0	1.0	1.0	3.0	6.0	13.0	18.0	25.0	23.5
11	14.0	2.5	2.5	2.0	1.5	1.0	3.0	4.5	14.0	18.5	25.0	23.0
12	13.5	2.0	2.5	1.5	1.5	1.0	3.0	5.5	14.0	18.5	25.0	23.0
13	13.0	1.5	2.5	2.0	1.0	1.5	3.0	6.5	14.5	18.5	25.0	23.0
14	13.0	3.0	3.0	1.5	1.0	1.0	3.0	5.5	14.5	19.0	25.0	23.0
15	12.5	3.0	3.0	2.0	1.0	1.5	2.0	6.5	14.5	19.0	25.0	22.5
16	12.0	3.0	3.0	2.0	1.0	2.0	2.0	6.5	15.0	19.0	25.0	22.5
17	12.0	3.0	2.5	2.0	1.0	2.0	2.0	6.5	15.0	19.0	25.0	21.5
18	11.0	2.5	2.0	2.0	1.0	1.5	2.5	6.5	15.5	19.0	25.0	21.5
19	11.5	2.5	2.5	2.0	1.0	1.5	2.5	7.0	15.5	20.0	25.0	21.5
20	9.5	3.0	2.0	1.5	1.0	1.5	3.0	7.0	16.0	20.0	25.0	21.5
21	9.0	3.0	2.0	1.5	1.0	1.5	3.0	7.5	16.5	20.5	25.0	21.0
22	9.0	3.0	2.0	2.0	1.0	1.5	3.0	8.5	16.0	20.5	25.0	21.5
23	8.5	2.5	2.0	2.0	1.0	1.5	3.0	7.5	16.0	21.0	25.0	21.0
24	8.5	3.0	1.5	2.0	.5	1.5	3.0	9.0	15.5	22.0	25.0	21.0
25	8.0	3.0	2.5	1.5	1.0	1.5	3.0	9.5	16.0	22.5	25.5	21.0
26	7.5	3.0	2.0	1.5	1.0	2.0	3.0	10.0	16.5	22.5	24.5	21.0
27	7.5	3.0	1.5	1.5	.5	2.0	3.0	10.5	17.0	23.0	24.5	21.0
28	7.0	2.0	1.5	1.5	.5	2.0	3.0	11.0	17.0	22.5	24.5	21.5
29	6.5	3.0	2.0	1.5	---	2.0	3.0	11.0	17.0	23.0	24.0	21.0
30	6.5	2.5	1.5	1.5	---	2.0	3.5	11.0	17.5	23.5	24.0	20.5
31	5.0	---	1.5	1.5	---	2.0	---	11.5	---	23.5	24.0	---
MEAN	12.0	3.0	2.5	1.5	1.0	1.5	2.5	7.0	14.5	19.5	24.5	22.5

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV											
30...	0	0	2	0	2	190	10	2	1	1	100
JAN											
30...	0	0	6	6	0	120	0	7	1	6	40
APR											
27...	0	0	4	4	0	1800	20	6	0	6	90
JUL											
11...	1	2	7	4	3	180	20	12	2	10	70

DISSOLVED OXYGEN (DO), MG/L, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.4	10.4	11.1	12.5	12.5	12.2	12.8	13.0	10.0	9.6	7.3	7.9
2	8.5	10.5	11.2	12.4	12.5	12.4	12.8	12.8	10.2	9.6	7.3	8.0
3	8.7	10.6	11.2	12.4	12.5	12.6	12.8	12.5	10.2	9.5	7.4	8.0
4	8.7	10.8	11.3	12.4	12.4	12.6	12.8	12.5	10.1	9.2	7.6	8.0
5	8.8	10.9	11.3	12.5	12.3	12.7	12.8	12.4	10.2	9.0	7.4	8.0
6	8.8	10.9	11.3	12.4	12.4	12.9	12.9	12.2	10.1	8.7	7.4	8.1
7	8.9	11.0	11.3	12.4	12.3	12.8	12.9	12.3	10.0	8.6	7.5	8.1
8	8.9	10.9	11.3	12.4	12.4	12.8	12.8	12.2	10.0	8.5	7.6	8.2
9	9.0	10.9	11.3	12.3	12.4	12.9	12.9	12.2	10.1	8.5	7.7	8.1
10	9.1	11.0	11.4	12.4	12.3	12.9	12.8	12.1	10.2	8.3	7.5	8.1
11	9.2	10.9	11.5	12.4	12.3	13.0	12.7	12.2	10.1	8.3	7.4	8.1
12	9.4	11.0	11.6	12.2	12.3	13.1	12.8	12.2	10.0	8.2	7.3	8.1
13	9.3	11.0	11.9	12.2	12.3	13.2	12.7	12.0	10.0	8.1	7.4	9.1
14	9.3	10.9	11.9	12.2	12.3	13.1	12.7	12.0	10.0	8.1	7.3	8.3
15	9.5	10.7	12.0	12.3	12.2	13.0	12.9	11.8	10.1	8.0	7.5	8.3
16	9.4	10.7	12.1	12.3	12.3	13.0	12.9	11.5	10.1	8.0	7.5	8.4
17	9.7	10.8	12.2	12.4	12.3	13.0	13.0	11.5	10.0	8.1	7.5	8.5
18	9.7	10.7	12.1	12.4	12.3	13.1	13.1	11.5	10.1	8.0	7.7	8.6
19	9.6	10.9	12.2	12.4	12.3	13.1	13.0	11.3	10.1	7.7	7.6	8.6
20	9.7	10.8	12.2	12.3	12.3	13.1	13.2	11.3	10.1	7.7	7.8	8.8
21	9.6	10.9	12.3	12.3	12.4	13.1	13.5	11.4	10.1	7.5	7.7	8.9
22	9.8	10.9	12.2	12.3	12.4	13.2	13.5	11.3	10.0	7.6	7.5	9.0
23	9.9	11.0	12.2	12.2	12.3	12.9	13.5	11.1	10.0	7.6	7.8	9.0
24	9.9	11.0	12.3	12.2	12.2	13.0	13.5	11.0	9.8	7.6	7.8	9.1
25	10.0	11.1	12.2	12.3	12.3	12.9	13.5	10.7	9.7	7.8	7.8	9.1
26	10.0	11.1	12.3	12.3	12.2	12.9	13.4	10.5	9.7	7.6	7.9	9.0
27	10.3	11.1	12.4	12.4	12.2	12.9	13.3	10.3	9.7	7.4	8.0	9.0
28	10.2	11.2	12.4	12.5	12.2	12.9	13.5	10.3	9.2	7.2	8.0	8.9
29	10.2	11.1	12.4	12.4	---	12.9	13.5	10.1	9.4	7.4	7.8	9.0
30	10.2	10.8	12.5	12.4	---	12.9	13.2	10.1	9.5	7.3	7.8	8.9
31	10.2	---	12.5	12.4	---	12.8	---	10.0	---	7.4	8.0	---
MEAN	9.5	10.9	11.9	12.4	12.3	12.9	13.1	11.6	10.0	8.1	7.6	8.5

06453000 MISSOURI RIVER AT FORT RANDALL DAM, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 19,77	NOV 30,77	MAY 31,78	JUN 21,78	JUL 11,78
TIME	1400	1100	1200	1100	1100
TOTAL CELLS/ML	290	120	310	670	590
DIVERSITY: DIVISION	1.1	0.3	0.2	0.4	0.5
.CLASS	1.1	1.2	0.2	0.6	0.5
..ORDER	2.2	1.2	0.4	0.8	0.5
...FAMILY	2.3	1.7	0.4	1.1	0.7
....GENUS	2.3	1.7	0.4	1.1	0.7

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /MI	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....CHARACIUM	--	-	--	-	--	-	--	-	14	2
...OOCYSTACEAE										
....ANKISTRODESMUS	--	-	6	5	--	-	--	-	--	-
....OOCYSTIS	10	4	--	-	--	-	45	7	500#	85
...SCENEDESMACEAE										
....SCENEDESMUS	14	5	--	-	--	-	--	-	--	-
..TETRASPORALES										
...PALMELLACEAE										
....SPHAEROCYSTIS	120#	40	--	-	--	-	--	-	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	66#	23	--	-	--	-	--	-	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....STAURASTRUM	3	1	--	-	--	-	--	-	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	--	-	--	-	9	3	22	3	--	-
..PENNALES										
...FRAGILARIACEAE										
....ASTERIONELLA	--	-	--	-	290#	94	540#	80	--	-
...NITZSCHIACEAE										
....NITZSCHIA	--	-	--	-	--	-	45	7	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	--	-	--	-	--	-	22	3	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	--	-	--	-	9	3	--	-	--	-
..HORMOGONALES										
...OSCILLATORIACEAE										
....OSCILLATORIA	35	12	--	-	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	--	-	46#	38	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	17	14	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	38	13	--	-	--	-	--	-	--	-
....TRACHELOMONAS	3	1	51#	43	--	-	--	-	72	12

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

06464500 KEYA PAHA RIVER AT WEWELA, SD

LOCATION.--Lat 43°01'42", long 99°46'45", in SE¼ sec.24, T.95 N., R.76 W., Tripp County, Hydrologic Unit 10150006, on left bank 13 ft (4 m) downstream from bridge on U.S. Highway 183, 1.0 mi (1.6 km) north of Wewela, 4.5 mi (7.2 km) upstream from Holt Creek, and 11.5 mi (18.5 km) downstream from Lost Creek.

DRAINAGE AREA.--1,070 mi² (2,770 km²), approximately.

PERIOD OF RECORD.--November 1937 to September 1940, October 1947 to current year. Monthly discharge only for October 1947, published in WSP 1309.

GAGE.--Water-stage recorder. Datum of gage is 2,049.78 ft (624.773 m) National Geodetic Vertical Datum of 1929. Prior to June 21, 1957, nonrecording gage at site 13 ft (4 m) upstream at same datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years (water years 1939-40, 1948-77), 68.6 ft³/s (1.943 m³/s), 49,700 acre-ft/yr (61.3 hm³/s); median of yearly mean discharges, 58 ft³/s (1.64 m³/s), 42,000 acre-ft/yr (52 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,430 ft³/s (154 m³/s) Mar. 31, 1952, gage height, 13.08 ft (3.987 m); maximum gage height, 13.5 ft (4.11 m) Mar. 25, 1950, from floodmark (backwater from ice); no flow Jan. 10 to Feb. 15, 1949, Aug. 19 to Sept. 14, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 250 ft³/s (7.08 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 16	1115	1600	45.3	a*7.71	2.350	Apr. 20	0245	691	19.6	4.12	1.256
Mar. 19	--	b*2600	73.6	--	--						

a Ice jam.
b Sometime during the period Mar. 17-19.
Minimum daily discharge, 15 ft³/s (0.425 m³/s) Feb. 16.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	153	39	52	28	16	18	201	262	174	69	32	21
2	131	39	50	29	17	18	197	227	159	163	31	21
3	143	40	52	29	18	17	199	202	141	106	29	20
4	110	40	53	30	18	17	189	180	128	83	29	20
5	86	40	50	30	17	18	183	164	112	72	28	19
6	75	40	45	32	17	17	177	150	99	69	27	18
7	67	40	40	30	17	17	168	159	92	66	26	17
8	59	48	40	25	16	19	157	181	87	63	24	16
9	53	52	35	22	16	21	153	176	82	63	23	16
10	52	44	37	21	17	23	165	164	77	59	23	16
11	48	52	42	22	18	22	169	150	73	54	23	16
12	45	60	42	23	17	30	157	139	70	51	24	16
13	43	63	44	24	16	50	139	133	69	46	24	17
14	42	66	45	23	16	200	138	126	66	46	25	17
15	41	65	44	22	16	415	152	119	64	45	36	18
16	41	63	40	21	15	1500	204	111	62	44	35	18
17	41	59	37	20	16	2200	272	105	62	42	30	19
18	40	57	34	19	17	2000	420	103	66	41	29	22
19	40	56	32	17	17	2500	595	102	62	40	27	23
20	39	52	30	17	17	2240	624	97	57	39	25	23
21	39	25	31	18	18	2000	500	93	56	42	24	24
22	38	40	33	20	20	1480	419	92	68	55	22	24
23	38	50	33	20	22	970	426	89	70	64	22	24
24	41	60	32	19	21	628	420	84	80	57	22	23
25	39	65	30	18	20	438	379	78	94	50	22	23
26	39	60	29	17	19	343	331	74	148	46	22	22
27	38	58	29	16	19	290	280	74	120	42	23	22
28	39	56	30	16	18	274	238	87	102	39	25	22
29	39	55	31	16	---	249	222	135	80	35	24	22
30	41	55	32	17	---	231	265	171	68	34	23	23
31	40	---	30	16	---	221	---	192	---	32	22	---
TOTAL	1780	1539	1184	677	491	18466	8138	4219	2688	1757	801	602
MEAN	57.4	51.3	38.2	21.8	17.5	596	271	136	89.6	56.7	25.8	20.1
MAX	153	66	53	32	22	2500	624	262	174	163	36	24
MIN	38	25	29	16	15	17	138	74	56	32	22	16
AC-FT	3530	3050	2350	1340	974	36630	16140	8370	5330	3490	1590	1190

CAL YR 1977 TOTAL 32860.9 MEAN 90.0 MAX 605 MIN 2.0 AC-FT 65180
WTR YR 1978 TOTAL 42342.0 MEAN 116 MAX 2500 MIN 15 AC-FT 83990

NOTE.--No gage-height record Mar. 17-19.

06467000 LEWIS AND CLARK LAKE NEAR YANKTON, SD

LOCATION.--Lat 42°50'56", long 97°28'54", in SW¼ sec.7, T.33 N., R.1 W., Cedar County, NE, Hydrologic Unit 10170101, in powerhouse of Gavins Point Dam on Missouri River, 3.75 mi (6.0 km) southwest of Yankton, 13.6 mi (21.9 km) upstream from James River, 32.5 mi (52.3 km) downstream from Niobrara River, and at mile 811.0 (1,304.9 km).

DRAINAGE AREA.--279,500 mi² (723,900 km²), approximately.

PERIOD OF RECORD.--July 1955 to current year (monthend contents only). Prior to October 1955, published as Gavins Point Reservoir near Yankton.

GAGE.--Water-stage recorder. Datum of gage is National Geodetic Vertical Datum of 1929. Prior to Dec. 9, 1955, recorder at temporary location on wall of intake structure unit 3.

REMARKS.--Reservoir is formed by earthfill dam; storage began in July 1955. Maximum capacity, 541,000 acre-ft (667 hm³) below elevation 1,210.0 ft (368.81 m), top of spillway gates. Normal maximum, 477,000 acre-ft (588 hm³) below elevation 1,208.0 ft (368.20 m). Inactive storage, 156,000 acre-ft (192 hm³) below elevation 1,195.0 ft (364.24 m). Dead storage, 18,000 acre-ft (22.2 hm³) below elevation 1,180.0 ft (359.66 m) crest of spillway. Figures given herein represent elevations at powerhouse and total contents adjusted for wind effect.

The spillway consists of 14 taintor gates, each 40 ft (12.2 m) wide by 30 ft (9.1 m) high; spillway capacity, 280,000 ft³/s (7,930 m³/s) at pool elevation 1,210.0 ft (368.81 m). Crest of spillway is at elevation 1,180.0 ft (359.66 m). Normal releases are through 3 power units, installation completed in January 1957; maximum release through power units is 35,000 ft³/s (991 m³/s) at pool elevation, 1,210.0 ft (368.81 m). Water is used for flood control, navigation, power, and incidental uses.

COOPERATION.--Elevations and contents furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 565,000 acre-ft (697 hm³) Apr. 1, 1960, elevation, 1,210.7 ft (369.02 m), affected by wind; minimum since initial filling, 61,950 acre-ft (76.4 hm³) Apr. 23, 1956, elevation, 1,188.1 ft (362.13 m).

EXTREMES FOR CURRENT YEAR.--Maximum contents, 494,000 acre-ft (609 hm³) Mar. 22, 23, elevation, 1,209.2 ft (368.56 m); minimum, 350,000 acre-ft (432 hm³) Feb. 28, Mar. 2, elevation, 1,204.2 ft (367.04 m).

MONTHEND ELEVATION, IN FEET NGVD, AND CONTENTS,
IN ACRE-FEET, AT 2400, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

Date	Elevation	Contents	Change in contents
Sept. 30	1208.2	463000	
Oct. 31	1208.4	464000	+1000
Nov. 30	1208.0	453000	-11000
Dec. 31	1208.5	471000	+18000
CAL YR 1977			+30000
Jan. 31	1207.8	448000	-23000
Feb. 28	1204.2	350000	-98000
Mar. 31	1205.2	376000	+26000
Apr. 30	1205.4	383000	+7000
May 31	1205.6	385000	+2000
June 30	1205.9	396000	+11000
July 31	1206.6	414000	+18000
Aug. 31	1207.7	446000	+32000
Sept. 30	1207.7	447000	+1000
WTR YR 1978			-16000

NOTE.--Reservoir frozen over Dec. 6 to Apr. 4.

06467500 MISSOURI RIVER AT YANKTON, SD

LOCATION.--Lat 42°51'58", long 97°23'37", in SW¼SW¼ sec.18, T.93 N., R.55 W., Yankton County, Hydrologic Unit 10170101, near left bank in downstream end of left pier of Meridian Highway Bridge on U.S. Highway 81, 5.2 mi (8.4 km) downstream from Gavins Point Dam, 6.0 mi (9.7 km) upstream from James River, and at mile 805.8 (1,296.5 km).

DRAINAGE AREA.--279,500 mi^2 (723,900 km^2), approximately.

PERIOD OF RECORD.--October 1930 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at same site March 1873 to November 1886, March 1905 to May 1908 (fragmentary), August 1921 to date (except winter months prior to 1932), are contained in reports of the U.S. Weather Bureau.

GAGE.--Water-stage recorder. Datum of gage is 1,139.68 ft (347.374 m) National Geodetic Vertical Datum of 1929. Prior to Sept. 20, 1932, nonrecording gage, and Sept. 20, 1932, to Mar. 9, 1967, water-stage recorder at present site and at datum 20.0 ft (6.096 m) higher.

REMARKS.--Records good. Flow completely regulated by Lewis and Clark Lake 5.2 mi (8.4 km) upstream since July 1955 (see station 06467000). Many diversions for irrigation and water supply above station. Corps of Engineers gage-height telemeter at station. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--48 years, 26,190 ft^3/s (741.7 m^3/s), 18,970,000 acre-ft/yr (23.4 km^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 480,000 ft^3/s (13,600 m^3/s) Apr. 13, 1952; maximum gage height, 35.5 ft (10.82 m) Apr. 13, 14, 1952 (present datum); minimum daily discharge, 2,700 ft^3/s (76.5 m^3/s) Nov. 15, 16, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 50.5 ft (15.39 m) Apr. 5, 1881 (ice jam), present datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53,900 ft^3/s (1,530 m^3/s) Aug. 8, gage height, 21.21 ft (6.465 m); maximum gage height, 21.26 ft (6.480 m) Sept. 14; minimum daily discharge, 11,200 ft^3/s (317 m^3/s) Dec. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31000	31000	11400	15000	16000	16000	24100	25000	36900	43500	50900	51700
2	31600	30600	11400	15000	16000	16000	24200	25600	36800	43400	51300	51600
3	30800	30700	11300	15000	16000	16000	23900	25600	36800	43500	50700	51600
4	29900	30700	11200	15000	16000	16000	23800	26000	36600	43400	50700	51500
5	30800	30700	13800	15000	16000	16000	24000	26700	36600	43400	50600	51500
6	31300	30700	15000	15000	16000	16000	23600	26700	36600	41300	50700	51600
7	30900	30700	15000	14900	16000	16000	21000	26800	38000	39500	50800	51700
8	30300	30600	15000	15000	16000	16000	22000	27200	39400	43900	52300	51900
9	30500	29500	15000	15000	16000	16000	21600	27300	39200	44800	52900	51700
10	30300	29800	15000	15000	16000	16000	19600	27400	39100	44800	52700	51900
11	30600	30400	15000	15000	16000	16000	18700	27400	38400	45000	52600	51900
12	30700	30600	15000	15000	16000	16000	21600	27400	34000	45100	52600	51900
13	31400	30500	15000	15000	16000	16000	22900	27200	35300	46200	52700	51800
14	31200	30400	15000	15000	16000	16000	22500	27500	37400	46400	52900	51700
15	31100	30500	15000	15000	16000	16000	22200	27400	39500	46600	52600	52100
16	31200	31000	15000	15000	16000	16000	23300	27700	39600	47500	52700	52100
17	31100	31300	15000	16000	16000	16000	24300	27900	39800	47500	52800	52100
18	31500	31500	15000	16000	16000	16000	24700	27900	39800	48500	53000	52100
19	31600	31500	15000	16000	16000	12300	24100	27800	39900	48500	52800	52100
20	31800	31600	15000	16000	16000	12600	24500	28000	40000	49500	52600	52000
21	31800	31200	15000	16000	16000	12500	22900	28600	40200	49500	52600	52200
22	31800	31300	15000	16000	16000	17200	22200	29000	41200	48000	52600	52200
23	31400	30400	15000	16000	16000	26100	22900	29600	41300	47000	52800	52100
24	31200	27900	15000	16000	16000	27600	24000	32300	41600	50500	52600	52200
25	31700	25000	15000	16000	16000	27400	24800	32600	41800	50500	52400	52300
26	31400	22300	15000	16000	16000	26100	24800	32700	41800	50500	52100	52300
27	31400	19200	15000	16000	16000	24100	24500	34400	42300	52100	52100	52200
28	31400	16600	15000	16000	16000	24100	25000	36900	42200	51600	52000	52100
29	31500	13800	15000	16000	---	24100	25300	37300	43400	51400	52000	52200
30	31300	11800	15000	16000	---	24100	25500	37100	43500	51300	51900	52000
31	30600	---	15000	16000	---	24100	---	37100	---	51300	51700	---
TOTAL	965100	843800	449100	479900	448000	570300	698500	908100	1179000	1456000	1615700	1558300
MEAN	31130	28130	14490	15480	16000	18400	23280	29290	39300	46970	52120	51940
MAX	31800	31600	15000	16000	16000	27600	25500	37300	43500	52100	53000	52300
MIN	29900	11800	11200	14900	16000	12300	18700	25000	34000	39500	50600	51500
AC-FT	1914000	1674000	890800	951900	888600	1131000	1385000	1801000	2339000	2888000	3205000	3091000

CAL YR 1977 TOTAL 9781500 MEAN 26800 MAX 36700 MIN 11200 AC-FT 19400000
WTR YR 1978 TOTAL 11171800 MEAN 30610 MAX 53000 MIN 11200 AC-FT 22160000

06471000 JAMES RIVER AT COLUMBIA, SD

LOCATION.--Lat 45°37'05", long 98°19'30", in NE¼NW¼ sec.29, T.125 N., R.62 W., Brown County, Hydrologic Unit 10160003, on left bank 10 ft (3 m) downstream from highway bridge, 0.8 mi (1.3 km) northwest of Columbia, 2.4 mi (3.9 km) upstream from Chicago and North Western Transportation Company bridge, 3.6 mi (5.8 km) upstream from Elm River, and 9.4 mi (15.1 km) downstream from Columbia Road Dam.

DRAINAGE AREA.--7,050 mi^2 (18,300 km^2), approximately, of which about 3,000 mi^3 (7,770 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,275.01 ft (388.623 m) National Geodetic Vertical Datum of 1929. Prior to Oct. 5, 1957, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm^3), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm^3), 168 mi (270 km) upstream since May 1953.

AVERAGE DISCHARGE.--33 years, 105 ft^3/s (2.974 m^3/s), 76,070 acre-ft/yr (93.8 hm^3/yr); median of yearly mean discharges, 59 ft^3/s (1.67 m^3/s), 42,700 acre-ft/yr (53 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,420 ft^3/s (153 m^3/s) May 24, 25, 1950, gage height, 16.89 ft (5.148 m), from graph based on gage readings; maximum gage height, 17.09 ft (5.209 m) Apr. 22, 1969; maximum daily reverse flow, 1,860 ft^3/s (52.7 m^3/s) Apr. 8, 1952, backwater from Elm River.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,180 ft^3/s (33.4 m^3/s) Apr. 10, gage height, 14.79 ft (4.508 m); maximum gage height, 15.40 ft (4.694 m) Mar. 30 (backwater from Elm River); maximum daily reverse flow, 980 ft^3/s (27.8 m^3/s) Mar. 27 (backwater from Elm River).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	60	766	120	227	181	54
2	.00	.00	.00	.00	.00	.00	130	742	127	289	168	63
3	.00	.00	.00	.00	.00	.00	200	705	130	200	153	70
4	.00	.00	.00	.00	.00	.00	290	681	125	-20	139	71
5	.00	.00	.00	.00	.00	.00	390	657	120	-300	127	57
6	.00	.00	.00	.00	.00	.00	500	628	120	-80	119	35
7	.00	.00	.00	.00	.00	.00	640	596	122	150	108	21
8	.00	.00	.00	.00	.00	.00	790	589	120	290	90	20
9	.00	.00	.00	.00	.00	.00	930	574	123	400	67	19
10	.00	.00	.00	.00	.00	.00	1170	538	125	490	49	18
11	.00	.00	.00	.00	.00	.00	1160	483	121	550	30	17
12	.00	.00	.00	.00	.00	.00	1130	442	120	580	18	18
13	.00	.00	.00	.00	.00	.00	1150	432	120	576	10	18
14	.00	.00	.00	.00	.00	.00	1130	412	117	546	5.2	24
15	.00	.00	.00	.00	.00	.00	1090	382	123	518	2.0	35
16	.00	.00	.00	.00	.00	.00	1060	333	130	496	6.5	38
17	.00	.00	.00	.00	.00	.00	1020	282	134	471	16	39
18	.00	.00	.00	.00	.00	.00	1020	232	150	447	38	40
19	.00	.00	.00	.00	.00	.00	1020	185	171	423	46	41
20	.00	.00	.00	.00	.00	.00	1010	147	187	401	50	46
21	.00	.00	.00	.00	.00	.00	989	115	187	391	50	53
22	.00	.00	.00	.00	.00	.00	945	89	185	375	43	56
23	.00	.00	.00	.00	.00	.00	922	71	181	352	22	56
24	.00	.00	.00	.00	.00	30	906	66	177	328	11	58
25	.00	.00	.00	.00	.00	-60	897	80	174	308	25	58
26	.00	.00	.00	.00	.00	-760	870	88	174	304	30	61
27	.00	.00	.00	.00	.00	-980	840	93	168	281	31	61
28	.00	.00	.00	.00	.00	-970	814	92	168	259	41	63
29	.00	.00	.00	.00	---	-850	795	95	166	241	34	64
30	.00	.00	.00	.00	---	-60	784	97	203	219	31	64
31	.00	---	.00	.00	---	5.0	---	104	---	200	39	---
TOTAL	.00	.00	.00	.00	.00	-3645.00	24652	10796	4388	9912	1779.7	1338
MEAN	.000	.000	.000	.000	.000	-118	822	348	146	320	57.4	44.6
MAX	.00	.00	.00	.00	.00	30	1170	766	203	580	181	71
MIN	.00	.00	.00	.00	.00	-980	60	66	117	-300	2.0	17
AC-FT	.00	.00	.00	.00	.00	-7230	48900	21410	8700	19660	3530	2650

CAL YR 1977 TOTAL 22.84 MEAN .063 MAX 3.7 MIN .00 AC-FT 45
WTR YR 1978 TOTAL 49220.70 MEAN 135 MAX 1170 MIN -980 AC-FT 97630

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-64, 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1966 to current year.
WATER TEMPERATURES: October 1966 to current year.

REMARKS.--No flow Oct. 1 to Mar. 23.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,500 micromhos Mar. 1, 1974; minimum daily, 240 micromhos Mar. 17, 1972.
WATER TEMPERATURES: Maximum daily, 32.0°C June 29, July 10, 1970; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,090 micromhos May 24; minimum daily, 180 micromhos Apr. 4.
WATER TEMPERATURES: Maximum daily, 27.0°C July 4, 5; minimum daily, 1.0°C Mar. 25.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)
MAY 04...	1630	691	580	8.1	15.0	170	31	42	16	30
JUN 20...	1030	185	735	8.1	18.0	280	28	67	28	53
JUL 19...	1505	422	870	8.0	26.0	290	23	63	33	67
AUG 16...	1310	7.1	910	8.7	23.0	340	22	76	37	65
SEP 13...	1505	17	720	8.0	22.0	230	0	43	30	65

DATE	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)
MAY 04...	26	1.0	10	170	0	140	71	17	.1
JUN 20...	28	1.4	11	310	0	250	100	25	.2
JUL 19...	32	1.7	13	330	0	270	120	28	.2
AUG 16...	28	1.5	15	390	0	320	130	30	.2
SEP 13...	36	1.9	14	300	0	250	110	32	.2

DATE	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	BORON, DISSOLVED (UG/L AS B) (01020)
MAY 04...	5.9	276	.38	515	.01	.12	.07	.05	130
JUN 20...	25	463	.63	231	.04	.39	.33	.32	210
JUL 19...	23	512	.70	583	.00	.70	.63	.51	230
AUG 16...	19	567	.77	11.0	.01	.98	.65	.64	260
SEP 13...	15	459	.62	21.6	.09	.46	.36	.36	240

06471000 JAMES RIVER AT COLUMBIA, SD--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	190	470	650	690	750	740
2						---	190	470	660	570	730	730
3						---	240	470	650	630	740	740
4						---	180	580	670	620	750	740
5						---	200	480	660	660	750	760
6						---	190	490	680	690	750	760
7						---	190	500	670	500	750	770
8						---	230	480	680	670	750	750
9						---	330	490	700	720	760	740
10						---	190	480	710	730	780	720
11						---	450	490	720	760	800	720
12						---	560	510	720	780	820	710
13						---	590	510	730	780	850	720
14						---	560	520	740	800	860	710
15						---	570	540	740	790	880	710
16						---	580	550	720	800	910	720
17						---	580	560	730	800	880	730
18						---	550	560	720	800	880	720
19						---	540	570	750	870	780	730
20						---	540	570	730	800	760	740
21						---	460	590	770	790	770	740
22						---	500	610	770	780	770	750
23						---	490	630	750	780	780	740
24						430	480	650	770	780	820	740
25						200	470	680	760	780	840	760
26						180	460	680	750	760	760	760
27						380	460	670	750	760	760	760
28						260	460	670	730	760	680	760
29						190	460	650	740	750	740	770
30						190	470	640	660	750	740	770
31						180	---	630	---	750	730	---
MEAN						251	412	561	716	739	785	740

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	4.5	10.0	14.0	24.0	21.0	20.0
2						---	5.0	12.0	13.0	25.0	19.0	21.0
3						---	4.0	12.0	14.0	26.0	18.0	22.0
4						---	4.0	15.0	15.0	27.0	15.0	23.0
5						---	5.0	11.0	17.0	27.0	19.0	24.0
6						---	7.0	13.0	20.0	26.0	21.0	24.0
7						---	8.0	12.0	17.0	25.0	21.0	22.0
8						---	5.0	11.0	16.0	24.0	23.0	22.0
9						---	6.0	10.0	18.0	20.0	21.0	20.0
10						---	5.0	9.0	20.0	20.0	21.0	22.0
11						---	---	10.0	19.0	21.0	23.0	23.0
12						---	---	15.0	18.0	22.0	23.0	21.0
13						---	---	10.0	20.0	21.0	25.0	22.0
14						---	---	10.0	21.0	22.0	25.0	18.0
15						---	5.0	16.0	23.0	25.0	24.0	16.0
16						---	6.0	17.0	22.0	22.0	23.0	23.0
17						---	8.0	18.0	21.5	25.0	22.0	16.0
18						---	6.0	17.0	18.0	24.0	20.0	15.0
19						---	5.0	18.0	20.0	26.0	17.0	14.0
20						---	3.0	14.0	18.0	22.0	19.0	13.0
21						---	4.0	12.0	18.0	21.0	20.0	13.0
22						---	6.0	14.0	20.0	20.0	20.0	15.0
23						---	7.0	19.0	20.5	21.0	21.0	16.0
24						2.0	6.0	21.0	20.0	21.0	21.0	14.0
25						1.0	7.0	19.0	23.0	23.0	25.0	14.0
26						2.0	9.0	22.0	24.0	24.0	24.0	15.0
27						3.0	10.0	20.0	22.0	22.0	24.0	13.0
28						3.0	11.0	17.0	23.0	23.0	22.0	15.0
29						4.0	12.0	16.0	25.0	22.0	19.0	16.0
30						4.0	11.0	16.0	24.0	19.5	19.5	15.0
31						5.0	---	15.0	---	20.0	20.0	---
MEAN						3.0	6.5	14.5	19.5	23.0	21.0	18.0

06471200 MAPLE RIVER AT NORTH DAKOTA-SOUTH DAKOTA STATE LINE

LOCATION.--Lat 45°56'20", long 98°27'08", in SW¼SE¼ sec.33, T.129 N., R.62 W., Dickey County, ND, Hydrologic Unit 10160004, on left bank 0.4 mi (0.6 km) upstream from State line, 7.8 mi (12.6 km) northeast of Frederick, SD, and 15.7 mi (25.3 km) upstream from mouth.

DRAINAGE AREA.--750 mi^2 (1,940 km^2), approximately, of which about 270 mi^2 (699 km^2) is probably noncontributing.

PERIOD OF RECORD.--June 1956 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,365 ft (416 m), from topographic map. Prior to June 14, 1962, nonrecording gage at site 0.4 mi (0.6 km) downstream at datum 0.94 ft (0.287 m) lower.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--22 years, 19.6 ft^3/s (0.555 m^3/s), 14,200 acre-ft/yr (17.5 hm^3/yr); median of yearly mean discharges, 10 ft^3/s (0.28 m^3/s), 7,240 acre-ft/yr (8.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft^3/s (168 m^3/s) Apr. 11, 1969; maximum gage height, 16.05 ft (4.892 m) Apr. 11, 1969 (backwater from ice); no flow for long periods in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft^3/s (1.42 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 24	2100	ice jam		*14.21	4.331	May 17	0330	80	2.27	4.98	1.518
Mar. 25	--	*1800	51.0	ice jam		June 30	1100	174	4.93	5.99	1.826
Apr. 28	0100	76	2.15	4.95	1.509	July 3	1300	756	21.4	8.45	2.576

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	441	60	14	131	6.1	.04
2	.00	.00	.00	.00	.00	.00	411	52	13	294	5.6	.03
3	.00	.00	.00	.00	.00	.00	371	47	12	722	4.8	.01
4	.00	.00	.00	.00	.00	.00	303	42	11	542	3.9	.00
5	.00	.00	.00	.00	.00	.00	239	37	9.5	319	3.3	.00
6	.00	.00	.00	.00	.00	.00	196	30	8.5	225	2.7	.00
7	.00	.00	.00	.00	.00	.00	168	28	8.5	213	2.6	.01
8	.00	.00	.00	.00	.00	.00	148	31	7.6	185	2.2	.01
9	.00	.00	.00	.00	.00	.00	149	29	8.2	143	2.1	.01
10	.00	.00	.00	.00	.00	.00	149	25	9.8	107	1.7	.01
11	.00	.00	.00	.00	.00	.00	136	25	9.8	84	1.6	.02
12	.00	.00	.00	.00	.00	.00	117	33	8.5	70	1.4	.02
13	.00	.00	.00	.00	.00	.00	102	38	7.9	58	.90	.02
14	.00	.00	.00	.00	.00	.00	89	39	6.7	49	.82	1.7
15	.00	.00	.00	.00	.00	.00	80	39	7.0	45	1.7	21
16	.00	.00	.00	.00	.00	.00	73	57	10	42	1.5	24
17	.00	.00	.00	.00	.00	.00	65	78	6.7	39	1.6	19
18	.00	.00	.00	.00	.00	.00	66	68	5.9	33	1.6	16
19	.00	.00	.00	.00	.00	.00	63	58	7.9	31	.99	13
20	.00	.00	.00	.00	.00	.00	54	48	9.5	24	.54	9.8
21	.00	.00	.00	.00	.00	1.0	48	38	8.5	23	.54	7.3
22	.00	.00	.00	.00	.00	10	48	32	12	23	.54	4.1
23	.00	.00	.00	.00	.00	150	53	33	17	20	.54	3.5
24	.00	.00	.00	.00	.00	1200	53	30	21	18	.37	2.6
25	.00	.00	.00	.00	.00	1500	49	26	27	17	.33	1.5
26	.00	.00	.00	.00	.00	1600	50	23	38	15	.25	1.6
27	.00	.00	.00	.00	.00	1460	66	22	33	14	.19	1.2
28	.00	.00	.00	.00	.00	1130	75	20	32	12	.16	.67
29	.00	.00	.00	.00	---	979	70	19	37	10	.13	.60
30	.00	.00	.00	.00	---	787	66	17	155	8.5	.09	.48
31	.00	---	.00	.00	---	552	---	15	---	7.6	.04	---
TOTAL	.00	.00	.00	.00	.00	9369.00	3998	1139	562.5	3524.1	50.83	128.23
MEAN	.000	.000	.000	.000	.000	302	133	36.7	18.8	114	1.64	4.27
MAX	.00	.00	.00	.00	.00	1600	441	78	155	722	6.1	24
MIN	.00	.00	.00	.00	.00	.00	48	15	5.9	7.6	.04	.00
AC-FT	.00	.00	.00	.00	.00	18580	7930	2260	1120	6990	101	254

CAL YR 1977 TOTAL 251.19 MEAN .69 MAX 25 MIN .00 AC-FT 498
WTR YR 1978 TOTAL 18771.66 MEAN 51.4 MAX 1600 MIN .00 AC-FT 37230

06471500 ELM RIVER AT WESTPORT, SD

LOCATION.--Lat 45°39'22", long 98°29'48", in SW¼NW¼ sec.12, T.125 N., R.64 W., Brown County, Hydrologic Unit 10160004, on right bank 12 ft (3.7 m) downstream from highway bridge, 0.5 mi (0.8 km) north of Westport, 0.7 mi (1.1 km) upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 9.3 mi (15.0 km) downstream from Willow Creek, and 30.4 mi (48.9 km) upstream from mouth.

DRAINAGE AREA.--1,680 mi² (4,350 km²), approximately, of which about 510 mi² (1,320 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,309.3 ft (399.07 m) National Geodetic Vertical Datum of 1929. Prior to Aug. 6, 1951, and Apr. 8 to Sept. 9, 1952, nonrecording gage 12 ft (3.7 m) upstream at same datum. Aug. 6, 1951, to Apr. 7, 1952, water-stage recorder at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated for Aberdeen municipal water supply by Elm Lake and other small reservoirs upstream, combined capacity, about 16,000 acre-ft (19.7 hm³). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 47.4 ft³/s (1.342 m³/s), 34,340 acre-ft/yr (42.3 hm³/yr); median of yearly mean discharges, 23 ft³/s (0.65 m³/s), 16,700 acre-ft/yr (21 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,600 ft³/s (357 m³/s) Apr. 10, 1969, gage height, 22.11 ft (6.739 m); no flow for many days in most years prior to 1960.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	1700	ice jam		*17.25	5.258
Mar. 28	0045	*3700	105	17.20	5.243
May 15	2130	217	6.15	5.98	1.822
June 16	1430	186	5.27	5.86	1.786
June 30	0945	370	10.5	6.68	2.036
July 4	1545	1390	39.4	9.70	2.957

Minimum daily discharge, 0.56 ft³/s (0.016 m³/s) Sept. 19.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.9	6.2	3.4	5.0	2.8	2.3	1200	147	37	255	17	2.7
2	6.9	3.4	3.7	5.0	2.7	2.3	900	132	34	260	17	2.7
3	6.5	2.8	3.9	5.1	2.6	2.3	750	120	32	604	18	2.3
4	6.2	2.7	3.7	5.1	2.5	2.4	600	108	28	1300	15	2.2
5	6.2	2.5	4.6	5.2	2.4	2.4	550	98	26	1090	11	2.0
6	6.2	2.5	5.2	5.5	2.3	2.4	490	86	23	694	9.3	1.9
7	8.0	3.0	5.2	5.5	2.3	2.5	415	90	20	544	8.1	1.5
8	6.5	4.1	4.9	4.8	2.2	2.6	360	102	18	461	7.3	1.1
9	6.5	8.0	5.2	4.3	2.1	2.7	331	95	18	400	6.1	.85
10	6.5	14	4.9	3.8	2.1	2.8	335	95	16	333	5.6	.77
11	6.5	8.0	4.9	3.6	2.1	2.9	326	96	16	279	5.4	.70
12	6.5	6.2	4.6	3.8	2.1	3.0	305	107	16	234	5.1	1.1
13	4.4	6.2	4.6	4.0	2.1	3.2	262	132	14	195	4.5	1.3
14	4.1	5.5	4.4	4.2	2.1	3.4	215	158	16	167	4.3	1.0
15	3.9	4.9	4.9	4.3	2.1	3.6	183	204	16	144	11	1.1
16	4.1	4.6	4.9	4.2	2.1	3.8	194	213	130	125	8.5	.70
17	4.1	4.6	4.6	4.1	2.1	4.0	183	189	110	110	6.9	.70
18	3.7	3.7	4.6	4.0	2.1	4.2	189	183	68	97	7.6	.70
19	9.8	4.4	4.4	3.9	2.1	4.6	179	174	45	83	6.2	.56
20	20	4.7	5.2	3.8	2.1	5.0	179	146	31	73	5.5	3.0
21	12	4.8	5.5	3.7	2.1	30	172	125	24	68	5.2	17
22	4.9	5.2	5.2	3.6	2.1	200	155	110	20	59	4.6	16
23	4.4	4.9	5.2	3.5	2.1	500	155	90	20	52	5.5	12
24	4.1	4.9	5.2	3.4	2.2	1000	158	76	20	46	4.6	8.9
25	3.7	4.6	4.9	3.3	2.2	1500	158	71	23	43	4.1	6.5
26	3.2	4.4	4.9	3.2	2.2	3000	156	64	40	40	4.1	5.5
27	4.1	4.4	4.9	3.1	2.3	3400	155	56	49	34	4.1	4.4
28	6.2	4.6	4.9	3.0	2.3	3600	160	52	66	29	7.6	3.7
29	3.7	4.6	4.9	3.0	---	2700	168	50	75	24	4.9	3.0
30	2.7	3.2	4.9	2.9	---	2600	160	47	303	23	3.9	2.3
31	2.7	---	4.9	2.9	---	2000	---	42	---	19	3.4	---
TOTAL	185.2	147.6	147.2	124.8	62.5	20592.4	9743	3458	1354	7885	231.4	108.18
MEAN	5.97	4.92	4.75	4.03	2.23	664	325	112	45.1	254	7.46	3.61
MAX	20	14	5.5	5.5	2.8	3600	1200	213	303	1300	18	17
MIN	2.7	2.5	3.4	2.9	2.1	2.3	155	42	14	19	3.4	.56
AC-FT	367	293	292	248	124	40850	19330	6860	2690	15640	459	215

CAL YR 1977 TOTAL 2253.40 MEAN 6.17 MAX 46 MIN .38 AC-FT 4470
WTR YR 1978 TOTAL 44039.28 MEAN 121 MAX 3600 MIN .56 AC-FT 87350

06471898 MOCCASIN CREEK NEAR WARNER, SD

LOCATION.--Lat 45°17'55", long 98°29'42", in NW¼NW¼NW¼ sec.13, T.121 N., R.64 W., Brown County, Hydrologic Unit 10160003, on right bank at downstream side of highway bridge, 40 ft (12 m) upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, 21.5 mi (34.6 km) upstream from mouth, 2.0 mi (3.2 km) south of Warner and 11.3 mi (18.2 km) south of Aberdeen.

DRAINAGE AREA.--256 mi² (663 km²).

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,274.35 ft (388.422 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR CURRENT PERIOD.--Water year 1977: Maximum discharge, 41 ft³/s (1.16 m³/s) Mar. 19, gage height, 5.23 ft (1.594 m); no flow for many days.

Water year 1978: Maximum discharge, 387 ft³/s (11.0 m³/s) Apr. 1, gage height, 7.66 ft (2.335 m); no flow Nov. 29 to Mar. 23.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	12	4.1	1.4	.94	1.2	1.2
2	.00	.00	.00	.00	.00	.00	13	3.7	1.6	.97	1.2	1.2
3	.00	.00	.00	.00	.00	.00	12	3.2	1.8	1.0	1.2	1.3
4	.00	.00	.00	.00	.00	.00	12	2.9	2.0	1.0	1.2	1.3
5	.00	.00	.00	.00	.00	.00	12	2.7	1.9	1.1	1.1	1.4
6	.00	.00	.00	.00	.00	.00	9.7	2.6	1.7	1.1	1.1	1.4
7	.00	.00	.00	.00	.00	.00	8.7	2.3	1.6	1.1	1.1	1.5
8	.00	.00	.00	.00	.00	.00	8.1	2.1	1.5	1.2	1.1	1.5
9	.00	.00	.00	.00	.00	.00	7.5	1.8	1.3	1.2	1.1	1.6
10	.00	.00	.00	.00	.00	2.0	7.2	1.6	1.2	1.2	1.1	1.6
11	.00	.00	.00	.00	.00	3.0	7.0	1.4	1.3	1.2	1.1	1.7
12	.00	.00	.00	.00	.00	4.0	7.1	1.3	1.1	1.2	1.0	1.7
13	.00	.00	.00	.00	.00	6.0	7.2	1.1	.94	1.2	1.0	1.8
14	.00	.00	.00	.00	.00	10	7.4	1.0	.76	1.3	1.0	1.8
15	.00	.00	.00	.00	.00	15	7.5	.90	.73	1.3	.98	1.9
16	.00	.00	.00	.00	.00	20	7.8	.88	.83	1.3	.97	1.9
17	.00	.00	.00	.00	.00	30	7.8	.87	.76	1.3	.96	2.0
18	.00	.00	.00	.00	.00	31	9.0	.86	.76	1.3	.94	2.0
19	.00	.00	.00	.00	.00	38	9.5	.86	.76	1.3	.94	2.1
20	.00	.00	.00	.00	.00	35	9.8	.86	.76	1.3	.95	2.2
21	.00	.00	.00	.00	.00	31	9.0	.86	.76	1.3	.95	2.2
22	.00	.00	.00	.00	.00	23	7.9	.86	.77	1.3	.96	2.3
23	.00	.00	.00	.00	.00	18	7.5	.86	.78	1.3	.98	3.0
24	.00	.00	.00	.00	.00	12	7.0	.86	.79	1.3	1.0	4.9
25	.00	.00	.00	.00	.00	10	6.4	.86	.81	1.3	1.0	5.0
26	.00	.00	.00	.00	.00	10	5.9	.86	.84	1.3	1.0	4.8
27	.00	.00	.00	.00	.00	9.9	5.8	.86	.86	1.3	1.1	4.8
28	.00	.00	.00	.00	.00	10	5.5	.86	.88	1.3	1.1	5.0
29	.00	.00	.00	.00	---	13	4.8	.86	.90	1.3	1.1	5.5
30	.00	.00	.00	.00	---	15	4.3	.86	.92	1.2	1.1	6.1
31	.00	---	.00	.00	---	14	---	1.2	---	1.2	1.2	---
TOTAL	.00	.00	.00	.00	.00	359.90	246.4	46.83	33.01	37.61	32.73	76.7
MEAN	.000	.000	.000	.000	.000	11.6	8.21	1.51	1.10	1.21	1.06	2.56
MAX	.00	.00	.00	.00	.00	38	13	4.1	2.0	1.3	1.2	6.1
MIN	.00	.00	.00	.00	.00	.00	4.3	.86	.73	.94	.94	1.2
AC-FT	.00	.00	.00	.00	.00	714	489	93	65	75	65	152

WTR YR 1977 TOTAL 833.18 MEAN 2.28 MAX 38 MIN .00 AC-FT 1650

06471898 MOCCASIN CREEK NEAR WARNER, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	1.1	.00	.00	.00	.00	369	27	14	68	16	12
2	6.7	.94	.00	.00	.00	.00	335	25	14	67	15	11
3	6.5	.90	.00	.00	.00	.00	284	22	14	75	13	11
4	6.5	.80	.00	.00	.00	.00	242	22	14	83	11	9.7
5	6.1	.70	.00	.00	.00	.00	198	20	15	84	11	9.5
6	5.4	.68	.00	.00	.00	.00	156	17	14	86	11	8.8
7	6.0	.72	.00	.00	.00	.00	126	17	14	88	11	8.2
8	6.9	1.4	.00	.00	.00	.00	111	22	12	89	11	7.3
9	6.1	3.5	.00	.00	.00	.00	89	22	11	95	10	7.0
10	5.6	3.6	.00	.00	.00	.00	84	23	9.6	96	9.0	6.6
11	5.1	3.5	.00	.00	.00	.00	71	25	8.9	94	7.7	6.2
12	4.5	2.5	.00	.00	.00	.00	67	27	8.4	88	6.7	6.2
13	4.2	1.7	.00	.00	.00	.00	59	26	7.4	81	5.4	6.2
14	4.3	1.3	.00	.00	.00	.00	55	24	6.9	72	4.8	6.1
15	4.2	.92	.00	.00	.00	.00	50	24	6.5	64	4.9	5.9
16	4.1	.65	.00	.00	.00	.00	47	22	6.5	56	4.6	5.9
17	4.0	.45	.00	.00	.00	.00	44	19	5.9	50	4.1	5.8
18	3.8	.35	.00	.00	.00	.00	43	17	5.4	46	3.6	5.8
19	3.5	.28	.00	.00	.00	.00	45	15	4.8	41	3.3	5.9
20	3.4	.23	.00	.00	.00	.00	46	15	4.4	37	3.2	5.7
21	3.2	.20	.00	.00	.00	.00	44	14	4.0	36	3.6	5.4
22	2.9	.15	.00	.00	.00	.00	41	13	3.4	36	4.0	5.0
23	2.5	.10	.00	.00	.00	.00	41	12	2.9	33	6.0	4.6
24	2.3	.08	.00	.00	.00	3.0	41	11	2.6	30	6.3	4.5
25	2.0	.06	.00	.00	.00	50	39	12	2.3	28	6.8	4.0
26	1.9	.04	.00	.00	.00	90	37	11	2.3	26	9.4	3.6
27	1.7	.02	.00	.00	.00	130	34	10	1.6	24	12	3.5
28	1.5	.01	.00	.00	.00	160	35	10	1.2	21	14	3.1
29	1.3	.00	.00	.00	---	140	35	12	.95	19	15	3.1
30	1.2	.00	.00	.00	---	189	34	13	61	18	14	3.0
31	1.1	---	.00	.00	---	314	---	14	---	17	13	---
TOTAL	125.1	26.88	.00	.00	.00	1076.00	2902	563	278.95	1748	270.4	190.6
MEAN	4.04	.90	.000	.000	.000	34.7	96.7	18.2	9.30	56.4	8.72	6.35
MAX	6.9	3.6	.00	.00	.00	314	369	27	61	96	16	12
MIN	1.1	.00	.00	.00	.00	.00	34	10	.95	17	3.2	3.0
AC-FT	248	53	.00	.00	.00	2130	5760	1120	553	3470	536	378

CAL YR 1977 TOTAL 985.16 MEAN 2.70 MAX 38 MIN .00 AC-FT 1950
WTR YR 1978 TOTAL 7180.93 MEAN 19.7 MAX 369 MIN .00 AC-FT 14240

06473000 JAMES RIVER AT ASHTON, SD

LOCATION.--Lat 44°59'54", long 98°28'50", in NW¼NW¼NE¼ sec.36, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160006, on right bank at downstream side of highway bridge, 0.9 mi (1.4 km) east of Ashton, 6.1 mi (9.8 km) upstream from Snake Creek, and 14.2 mi (22.8 km) upstream from Turtle Creek.

DRAINAGE AREA.--11,000 mi² (28,500 km²), approximately, of which about 4,190 mi² (10,900 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year.

REVISED RECORDS.--WSP 1209: 1947.

GAGE.--Water-stage recorder. Datum of gage is 1,244.4 ft (379.29 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 26, 1957, nonrecording gage at present site and Nov. 26, 1957, to Oct. 7, 1974, water-stage recorder at site 900 ft (274 m) upstream all at present datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm³), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm³), 285 mi (459 km) upstream since May 1953. Occasional backwater and reverse flow caused by Snake Creek during most years. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--33 years, 155 ft³/s (4.390 m³/s), 112,300 acre-ft/yr (138 hm³/yr); median of yearly mean discharges, 110 ft³/s (3.12 m³/s), 79,700 acre-ft/yr (98 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,680 ft³/s (161 m³/s) Apr. 24, 1969, gage height, 20.63 ft (6.288 m); maximum gage height, 21.17 ft (6.453 m) Apr. 13, 1969 (backwater from Snake Creek); maximum daily reverse flow, 2,100 ft³/s (59.5 m³/s) Apr. 9, 1969 (backwater from Snake Creek).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,680 ft³/s (47.6 m³/s) Apr. 18, gage height, 14.06 ft (4.285 m); maximum gage height, 16.17 ft (4.929 m) Apr. 2 (backwater from Snake Creek); maximum daily reverse flow, 450 ft³/s (12.7 m³/s) Mar. 26 (backwater from Snake Creek).

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.10	.00	.00	.00	1500	1350	758	348	626	114
2	.00	.00	.10	.00	.00	.00	1300	1320	720	343	622	106
3	.00	.00	.10	.00	.00	.00	1200	1280	678	346	612	102
4	.00	.00	.10	.00	.00	.00	1100	1250	643	345	601	98
5	.00	.00	.10	.00	.00	.00	1130	1210	614	338	589	97
6	.00	.00	.10	.00	.00	.00	1140	1170	578	332	572	94
7	.00	.00	.10	.00	.00	.00	1130	1160	540	327	555	90
8	.00	.10	.10	.00	.00	.00	1130	1160	508	329	534	87
9	.00	.25	.10	.00	.00	.00	1160	1140	480	334	512	82
10	.00	.30	.00	.00	.00	.00	1230	1120	457	339	487	80
11	.00	.20	.00	.00	.00	.00	1320	1100	434	350	462	77
12	.00	.14	.00	.00	.00	.00	1370	1080	415	368	440	75
13	.00	.10	.00	.00	.00	.00	1440	1070	398	386	419	71
14	.00	.10	.00	.00	.00	.00	1490	1050	387	410	398	67
15	.00	.10	.00	.00	.00	.00	1540	1030	378	436	381	62
16	.00	.10	.00	.00	.00	.00	1580	1010	373	459	362	59
17	.00	.10	.00	.00	.00	.00	1610	983	365	485	341	56
18	.00	.10	.00	.00	.00	.00	1660	961	350	508	319	54
19	.00	.10	.00	.00	.00	.00	1670	940	335	529	298	51
20	.00	.10	.00	.00	.00	.10	1660	923	322	548	276	48
21	.00	.10	.00	.00	.00	.11	1640	904	309	570	252	46
22	.00	.10	.00	.00	.00	.12	1610	881	300	588	226	44
23	.00	.10	.00	.00	.00	10	1600	856	293	598	220	43
24	.00	.10	.00	.00	.00	-50	1590	827	282	610	195	43
25	.00	.10	.00	.00	.00	-400	1550	817	275	623	177	43
26	.00	.10	.00	.00	.00	-450	1510	789	268	631	169	45
27	.00	.10	.00	.00	.00	-350	1470	764	260	635	162	45
28	.00	.10	.00	.00	.00	.00	1440	740	253	637	161	45
29	.00	.10	.00	.00	---	50	1420	784	248	637	148	45
30	.00	.10	.00	.00	---	650	1390	803	261	634	136	45
31	.00	---	.00	.00	---	800	---	788	---	631	124	---
TOTAL	.00	2.79	.90	.00	.00	260.33	42580	31260	12482	14654	11376	2014
MEAN	.000	.093	.029	.000	.000	8.40	1419	1008	416	473	367	67.1
MAX	.00	.30	.10	.00	.00	800	1670	1350	758	637	626	114
MIN	.00	.00	.00	.00	.00	-450	1100	740	248	327	124	43
AC-FT	.00	5.5	1.8	.00	.00	516	84460	62000	24760	29070	22560	3990

CAL YR 1977 TOTAL 1211.12 MEAN 3.32 MAX 96 MIN .00 AC-FT 2400
WTR YR 1978 TOTAL 114630.02 MEAN 314 MAX 1670 MIN -450 AC-FT 227400

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1978.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1977 to current year.

REMARKS.--No flow Oct. 1 to Nov. 7, Dec. 10 to Mar. 19.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: Maximum daily, 28.0°C July 3, 1978; minimum daily, 0.0°C on several days during November to December 1978.

EXTREMES FOR CURRENT PERIOD.--
WATER TEMPERATURES: Maximum daily, 28.0°C July 3; minimum daily, 0.0°C on several days during winter period.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1		---	.0			---	8.0	12.0	19.0	26.0	24.0	23.0
2		---	.0			---	---	14.0	18.0	---	22.0	24.0
3		---	.0			---	5.0	16.0	18.0	28.0	22.0	---
4		---	---			---	5.0	14.0	---	---	21.0	---
5		---	.0			---	7.0	16.0	19.0	27.0	22.0	25.0
6		---	.0			---	8.0	15.0	20.0	27.0	---	26.0
7		---	---			---	8.0	---	19.0	26.0	24.0	26.0
8		.5	---			---	7.0	12.0	19.0	24.0	24.0	25.0
9		---	---			---	---	12.0	21.0	---	24.0	24.0
10		.5	.0			---	8.0	14.0	22.0	23.0	24.0	---
11		3.0	---			---	6.5	16.0	---	23.0	24.0	24.0
12		---	---			---	7.0	16.0	21.0	24.0	25.0	24.0
13		---	---			---	7.0	14.0	22.0	24.0	---	22.0
14		3.0	---			---	7.0	---	23.0	25.0	26.0	19.0
15		4.0	---			---	8.0	15.0	23.0	26.0	19.0	19.0
16		5.0	---			---	---	17.0	24.0	---	24.0	19.0
17		4.0	---			---	7.0	18.0	23.0	26.0	24.0	---
18		2.0	---			---	6.0	19.0	---	26.0	23.0	17.0
19		1.0	---			---	5.0	19.0	23.5	26.0	22.0	15.0
20		---	---			---	4.0	18.0	21.0	25.0	---	15.0
21		---	---			---	7.0	---	22.0	25.0	23.0	15.0
22		.0	---			---	8.0	19.0	22.0	24.0	23.0	14.0
23		.0	---			---	---	19.0	23.0	---	24.0	15.0
24		---	---			1.0	7.0	21.0	23.0	24.0	25.0	---
25		.0	---			1.0	9.0	22.0	---	25.0	26.0	15.0
26		.0	---			3.0	11.0	23.0	24.0	25.0	25.0	17.0
27		---	---			4.0	13.0	23.0	24.0	25.0	---	16.0
28		.0	---			4.0	13.0	---	25.0	25.0	24.0	16.0
29		.0	---			4.0	13.0	---	27.0	24.0	23.0	16.0
30		.0	---			4.0	---	20.0	27.0	---	23.0	15.0
31		---	---			9.0	---	20.0	---	23.0	23.0	---
MEAN		1.5	.0			4.0	8.0	17.0	22.0	25.0	23.5	19.5

06473000 JAMES RIVER AT ASHTON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
JUL						
05...	1150	338	28.0	5.1	680	7.6
05...	1440	338	28.5	5.5	670	7.8
05...	1640	337	28.5	5.4	670	7.8
05...	1840	337	28.5	5.2	670	7.8
05...	2040	336	28.5	5.0	670	7.8
05...	2245	336	28.0	4.8	670	7.8
06...	0100	336	28.0	4.4	670	7.8
06...	0300	335	28.0	4.4	660	7.8
06...	0445	335	27.5	4.4	670	7.8
06...	0745	334	27.5	4.3	670	7.8
06...	0840	334	27.0	4.3	670	7.8
06...	1045	334	27.0	4.4	670	7.8
06...	1230	334	27.0	4.4	670	7.8
SEP						
21...	1030	46	13.5	9.7	1030	8.4
21...	1200	46	13.5	9.7	--	--
21...	1400	46	14.0	9.9	--	--
21...	1600	46	16.0	1.0	--	--
21...	1800	46	16.0	11.2	--	--
21...	2000	45	16.0	11.2	--	--
21...	2200	45	16.0	10.6	--	--
21...	2400	45	16.0	10.2	--	--
22...	0200	44	15.0	10.1	--	--
22...	0400	44	15.0	9.4	--	--
22...	0600	44	15.0	9.3	--	--
22...	0800	44	14.0	9.5	--	--
22...	1000	44	14.0	9.7	1030	8.5
22...	1100	44	13.5	10.1	--	--

06473700 SNAKE CREEK NEAR ASHTON, SD

LOCATION.--Lat 45°01'50", long 98°34'26", in SW¼SW¼ sec.17, T.118 N., R.64 W., Spink County, Hydrologic Unit 10160008, on right downstream wingwall of bridge, 700 ft (210 m) downstream from South Fork Snake Creek, 4.5 mi (7.2 km) northwest of Ashton, and 21.5 mi (34.6 km) upstream from mouth.

DRAINAGE AREA.--2,620 mi² (6,790 km²), approximately, of which about 850 mi² (2,200 km²) is probably noncontributing.

PERIOD OF RECORD.--October 1955 to September 1969, October 1976 to current year. (October 1969 to September 1972 maximum discharge only.)

GAGE.--Water-stage recorder. Altitude of gage is 1,265 ft (385 m), from topographic map. Prior to Oct. 1, 1957, water-stage recorder at site 10.7 mi (17.2 km) downstream at different datum. Oct. 1, 1957, to May 26, 1958, wire-weight gage, May 27, 1958, to Sept. 30, 1969, water-stage recorder, and Oct. 1, 1969, to Sept. 30, 1972, crest-stage gage all at present site and datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years (water years 1956-69, 1977-78), 24.4 ft³/s (0.691 m³/s), 17,680 acre-ft/yr (21.8 hm³/yr); median of yearly mean discharges, 6.0 ft³/s (0.17 m³/s), 4,300 acre-ft/yr (5.3 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,980 ft³/s (198 m³/s) Apr. 10, 1969, gage height, 17.21 ft (5.246 m); no flow for many days in each year.

EXTREMES FOR CURRENT PERIOD.--Water year 1977: Maximum discharge, 144 ft³/s (4.08 m³/s) at 1545 hours Mar. 16, gage height, 9.04 ft (2.755 m), no other peak above base of 75 ft³/s (2.12 m³/s); no flow for many days.

Water year 1978: Peak discharges above base of 75 ft³/s (2.12 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 31	1230	*3030	85.8	*16.20	4.938
May 8	2400	85	2.41	7.80	2.377
June 3	1830	167	4.73	9.69	2.938
July 11	0100	121	3.43	9.20	2.804

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	25	.83	.00	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	23	.74	.00	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	18	.78	.00	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	18	.85	.00	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	16	.72	.00	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	11	.30	.00	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	12	.11	.00	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	9.4	.05	.00	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	7.2	.02	.00	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	4.9	.00	.00	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	3.4	.00	.00	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	3.4	.00	.00	.00	.00	.00
13	.00	.00	.00	.00	.00	2.0	3.1	.00	.00	.00	.00	.00
14	.00	.00	.00	.00	.00	10	2.7	.00	.05	.00	.02	.00
15	.00	.00	.00	.00	.00	40	2.4	.00	.60	.00	.10	.00
16	.00	.00	.00	.00	.00	150	2.3	.00	.15	.00	.00	.00
17	.00	.00	.00	.00	.00	132	2.3	.00	.02	.00	.00	.00
18	.00	.00	.00	.00	.00	82	2.3	.00	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	50	2.4	.00	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	40	2.3	.00	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	27	2.0	.20	.00	.00	.00	.15
22	.00	.00	.00	.00	.00	19	1.9	.35	.20	.00	.00	.08
23	.00	.00	.00	.00	.00	16	1.8	.10	.40	.00	.00	.60
24	.00	.00	.00	.00	.00	13	1.6	.00	.10	.00	.00	.30
25	.00	.00	.00	.00	.00	12	1.5	.00	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	10	1.4	.00	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	8.0	1.3	.00	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	6.8	1.0	.01	.00	.00	.00	.00
29	.00	.00	.00	.00	---	13	1.1	.05	.00	.00	.00	.00
30	.00	.00	.00	.00	---	25	1.0	.02	.00	.00	.00	.00
31	.00	---	.00	.00	---	22	---	.00	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	677.80	185.7	5.13	1.52	.00	.12	1.13
MEAN	.000	.000	.000	.000	.000	21.9	6.19	.17	.051	.000	.004	.038
MAX	.00	.00	.00	.00	.00	150	25	.85	.60	.00	.10	.60
MIN	.00	.00	.00	.00	.00	.00	1.0	.00	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	1340	368	10	3.0	.00	.2	2.2

WTR YR 1977 TOTAL 871.40 MEAN 2.39 MAX 150 MIN .00 AC-FT 1730

06473700 SNAKE CREEK NEAR ASHTON, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	2430	97	84	59	34	15
2	.00	.00	.00	.00	.00	.00	1770	89	124	71	33	15
3	.00	.00	.00	.00	.00	.00	1230	81	161	59	31	14
4	.00	.00	.00	.00	.00	.00	905	74	156	43	30	13
5	.00	.00	.00	.00	.00	.00	720	69	135	32	29	13
6	.00	.00	.00	.00	.00	.00	589	65	116	25	27	18
7	.40	.00	.00	.00	.00	.00	486	68	103	21	26	28
8	.25	.00	.00	.00	.00	.00	419	79	92	28	25	25
9	.00	.00	.00	.00	.00	.00	366	83	85	89	23	22
10	.00	.00	.00	.00	.00	.00	326	81	79	117	23	20
11	.00	.00	.00	.00	.00	.00	287	80	75	119	23	17
12	.00	.00	.00	.00	.00	.00	246	75	71	114	24	16
13	.00	.00	.00	.00	.00	.00	216	74	68	108	22	14
14	.00	.00	.00	.00	.00	.00	192	71	67	103	22	13
15	.00	.00	.00	.00	.00	.00	168	64	65	97	22	12
16	.00	.00	.00	.00	.00	.00	148	57	61	90	22	11
17	.00	.00	.00	.00	.00	.00	135	52	56	83	21	10
18	.00	.00	.00	.00	.00	.00	145	48	50	74	20	11
19	.00	.00	.00	.00	.00	.00	150	47	44	68	20	10
20	.00	.00	.00	.00	.00	.00	146	44	40	63	18	9.6
21	.00	.00	.00	.00	.00	5.0	140	42	38	62	17	9.0
22	.00	.00	.00	.00	.00	10	130	39	35	59	17	8.3
23	.00	.00	.00	.00	.00	300	129	36	34	56	19	7.7
24	.00	.00	.00	.00	.00	900	132	34	36	52	19	7.4
25	.00	.00	.00	.00	.00	1200	128	43	32	50	18	7.2
26	.00	.00	.00	.00	.00	1600	122	37	28	47	17	6.7
27	.00	.00	.00	.00	.00	1760	116	36	25	43	16	6.4
28	.00	.00	.00	.00	.00	1770	110	37	23	40	18	6.1
29	.00	.00	.00	.00	---	1700	106	61	21	38	17	5.8
30	.00	.00	.00	.00	---	1950	101	89	34	37	17	5.5
31	.00	---	.00	.00	---	2880	---	83	---	35	16	---
TOTAL	.65	.00	.00	.00	.00	14075.00	12288	1935	2038	1982	686	376.7
MEAN	.021	.000	.000	.000	.000	454	410	62.4	67.9	63.9	22.1	12.6
MAX	.40	.00	.00	.00	.00	2880	2430	97	161	119	34	28
MIN	.00	.00	.00	.00	.00	.00	101	34	21	21	16	5.5
AC-FT	1.3	.00	.00	.00	.00	27920	24370	3840	4040	3930	1360	747

CAL YR 1977 TOTAL 872.05 MEAN 2.39 MAX 150 MIN .00 AC-FT 1730
WTR YR 1978 TOTAL 33381.35 MEAN 91.5 MAX 2880 MIN .00 AC-FT 66210

06473750 WOLF CREEK NEAR REE HEIGHTS, SD

LOCATION.--Lat 44°36'25", long 99°13'54", in SW¼SW¼ sec.11, T.113 N., R.70 W., Hand County, Hydrologic Unit 10160009, near right bank on downstream side of highway bridge, 0.3 mi (0.5 km) downstream from small left-bank tributary, 6.5 mi (10.5 km) north of Ree Heights, and 13.8 mi (22.2 km) upstream from Lake Louise dam.

DRAINAGE AREA.--265 mi² (686 km²), approximately.

PERIOD OF RECORD.--September 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,614.16 ft (491.996 m) National Geodetic Vertical Datum of 1929.

REMARKS.--Records good. Flow regulated by small reservoir 0.5 mi (0.8 km) upstream, capacity, about 1,100 acre-ft (1.36 hm³). Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--19 years, 4.32 ft³/s (0.122 m³/s), 3,130 acre-ft/yr (3.86 hm³/yr); median of yearly mean discharges, 0.15 ft³/s (0.004 m³/s), 109 acre-ft/yr (0.13 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 990 ft³/s (28.0 m³/s) Apr. 5, 1969, gage height, 9.33 ft (2.844 m); maximum gage height, 9.57 ft (2.917 m) Mar. 14, 1966 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft³/s (1.13 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 25	2300	*334	9.46	*7.83	2.387	May 4	0300	123	3.48	6.57	2.003
Apr. 23	2100	54	1.53	6.07	1.850	May 30	0900	58	1.64	6.16	1.878

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	180	32	21	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	171	30	14	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	161	36	9.5	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	168	116	6.1	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	166	100	4.0	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	71	76	2.5	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	6.1	56	1.8	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	6.7	44	1.3	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	13	25	.96	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	13	14	.63	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	9.0	10	.43	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	6.4	7.4	.26	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	3.8	4.5	.11	.00	.00	.00
14	.00	.00	.00	.00	.00	.10	2.8	3.2	.07	.00	.00	.00
15	.00	.00	.00	.00	.00	.50	2.0	2.1	.06	.00	.00	.00
16	.00	.00	.00	.00	.00	.60	1.6	1.6	.03	.00	.00	.00
17	.00	.00	.00	.00	.00	.80	1.5	1.2	.03	.00	.00	.00
18	.00	.00	.00	.00	.00	1.0	3.2	.96	.02	.00	.00	.00
19	.00	.00	.00	.00	.00	2.0	14	.76	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	5.0	52	.59	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	15	48	.43	.00	.00	.00	.00
22	.00	.00	.00	.00	.00	35	48	.26	.00	.00	.00	.00
23	.00	.00	.00	.00	.00	160	51	.11	.00	.00	.00	.00
24	.00	.00	.00	.00	.00	170	50	.08	.00	.00	.00	.00
25	.00	.00	.00	.00	.00	263	46	.08	.00	.00	.00	.00
26	.00	.00	.00	.00	.00	321	42	.05	.00	.00	.00	.00
27	.00	.00	.00	.00	.00	300	39	.05	.00	.00	.00	.00
28	.00	.00	.00	.00	.00	258	37	.96	.00	.00	.00	.00
29	.00	.00	.00	.00	---	221	36	17	.00	.00	.00	.00
30	.00	.00	.00	.00	---	198	34	52	.00	.00	.00	.00
31	.00	---	.00	.00	---	193	---	38	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	2144.00	1483.1	670.33	62.80	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	69.2	49.4	21.6	2.09	.000	.000	.000
MAX	.00	.00	.00	.00	.00	321	180	116	21	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	1.5	.05	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	4250	2940	1330	125	.00	.00	.00

CAL YR 1977 TOTAL 0.23 MEAN .001 MAX .09 MIN .00 AC-FT .50
WTR YR 1978 TOTAL 4360.23 MEAN 11.9 MAX 321 MIN .00 AC-FT 8650

06474000 TURTLE CREEK NEAR TULARE, SD

LOCATION.--Lat 44°44'06", long 98°35'09", in SE¼SE¼ sec.25, T.115 N., R.65 W., Spink County, Hydrologic Unit 10160009, on left bank at downstream side of highway bridge, 3.9 mi (6.3 km) west of Tulare and 8.9 mi (14.3 km) downstream from Wolf Creek.

DRAINAGE AREA.--1,120 mi² (2,900 km²), approximately.

PERIOD OF RECORD.--August 1953 to September 1956, September 1965 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,300 ft (396 m), by barometer. Prior to Oct. 6, 1965, nonrecording gage at same site and datum.

REMARKS.--Records fair. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--16 years, 15.3 ft³/s (0.433 m³/s), 11,080 acre-ft/yr (13.7 hm³/yr); median of yearly mean discharges, 2.5 ft³/s (0.07 m³/s) 1,800 acre-ft/yr (2.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, about 6,000 ft³/s (170 m³/s) Apr. 5, 1969; maximum gage height, 18.51 ft (5.642 m) Apr. 5, 1969 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 50 ft³/s (1.42 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	2200	*3800	108	a*16.17	4.929	June 2	1430	117	3.31	6.55	1.996
May 10	2330	81	2.29	5.87	1.789						

a Ice jam.
No flow Oct. 1 to Mar. 14.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	382	40	53	.63	.20	.04
2	.00	.00	.00	.00	.00	.00	729	37	101	.48	.19	.04
3	.00	.00	.00	.00	.00	.00	270	32	102	.38	.18	.04
4	.00	.00	.00	.00	.00	.00	234	29	91	.31	.17	.03
5	.00	.00	.00	.00	.00	.00	206	26	78	.28	.16	.03
6	.00	.00	.00	.00	.00	.00	202	22	67	.26	.15	.03
7	.00	.00	.00	.00	.00	.00	191	23	70	.24	.14	.02
8	.00	.00	.00	.00	.00	.00	174	31	63	.23	.13	.02
9	.00	.00	.00	.00	.00	.00	152	62	50	.23	.12	.02
10	.00	.00	.00	.00	.00	.00	99	77	40	.22	.10	.02
11	.00	.00	.00	.00	.00	.00	65	69	34	.20	.09	.02
12	.00	.00	.00	.00	.00	.00	53	60	28	.25	.09	.02
13	.00	.00	.00	.00	.00	.00	33	53	16	.24	.08	.02
14	.00	.00	.00	.00	.00	.00	25	43	7.6	.24	.08	.02
15	.00	.00	.00	.00	.00	.10	16	31	3.9	.25	.08	.02
16	.00	.00	.00	.00	.00	.50	4.2	21	2.6	.25	.07	.02
17	.00	.00	.00	.00	.00	1.0	3.2	14	3.9	.24	.07	.02
18	.00	.00	.00	.00	.00	1.5	25	9.2	6.8	.23	.07	.02
19	.00	.00	.00	.00	.00	3.0	21	17	9.2	.23	.06	.02
20	.00	.00	.00	.00	.00	5.0	15	18	11	.22	.05	.02
21	.00	.00	.00	.00	.00	30	11	15	10	.22	.05	.02
22	.00	.00	.00	.00	.00	500	11	10	8.4	.24	.04	.02
23	.00	.00	.00	.00	.00	3300	16	6.1	6.8	.24	.04	.02
24	.00	.00	.00	.00	.00	3400	16	3.4	6.8	.23	.04	.02
25	.00	.00	.00	.00	.00	2460	14	3.0	6.1	.24	.03	.02
26	.00	.00	.00	.00	.00	1600	14	2.3	3.6	.24	.03	.02
27	.00	.00	.00	.00	.00	1090	30	2.0	1.8	.22	.04	.02
28	.00	.00	.00	.00	.00	725	39	2.2	1.2	.22	.04	.02
29	.00	.00	.00	.00	---	596	41	32	.79	.21	.04	.02
30	.00	.00	.00	.00	---	601	42	46	.73	.20	.05	.02
31	.00	---	.00	.00	---	511	---	52	---	.20	.04	---
TOTAL	.00	.00	.00	.00	.00	14824.10	3133.4	888.2	884.22	8.07	2.72	.69
MEAN	.000	.000	.000	.000	.000	478	104	28.7	29.5	.26	.088	.023
MAX	.00	.00	.00	.00	.00	3400	729	77	102	.63	.20	.04
MIN	.00	.00	.00	.00	.00	.00	3.2	2.0	.73	.20	.03	.02
AC-FT	.00	.00	.00	.00	.00	29400	6220	1760	1750	16	5.4	1.4

CAL YR 1977 TOTAL 43.34 MEAN .12 MAX 13 MIN .00 AC-FT 86
WTR YR 1978 TOTAL 19741.40 MEAN 54.1 MAX 3400 MIN .00 AC-FT 39160

06474300 MEDICINE CREEK NEAR ZELL, SD

LOCATION.--Lat 44°45'52", long 98°42'13", in NW¼NW¼ sec.19, T.115 N., R.65 W., Spink County, Hyrologic Unit 10160009, on downstream side at center of bridge on State Highway 26, 3.8 mi (6.1 km) upstream from Cottonwood Lake and 9.2 mi (14.8 km) south of Zell.

DRAINAGE AREA.--210 mi^2 (540 km^2), approximately.

PERIOD OF RECORD.--September 1959 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,320 ft (402 m), from topographic map.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--19 years, 6.39 ft^3/s (0.181 m^3/s), 4,630 acre-ft/yr (5.71 hm^3/yr); median of yearly mean discharges, 2.0 ft^3/s (0.06 m^3/s), 1,400 acre-ft/yr (1.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,210 ft^3/s (62.6 m^3/s) Apr. 5, 1969, gage height, 12.41 ft (3.783 m); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 40 ft^3/s (1.13 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 22	1600	*1790	50.7	*10.79	3.289	May 31	0600	220	6.23	7.22	2.201

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.01	.00	.00	.00	.00	.00	57	5.7	131	.95	.08	.04
2	.00	.00	.00	.00	.00	.00	49	4.7	91	.85	.08	.03
3	.00	.00	.00	.00	.00	.00	48	3.7	66	.75	.08	.03
4	.00	.00	.00	.00	.00	.00	36	3.0	50	.58	.07	.03
5	.00	.00	.00	.00	.00	.00	27	2.5	38	.46	.07	.03
6	.00	.00	.00	.00	.00	.00	22	2.1	30	.38	.06	.02
7	.02	.00	.00	.00	.00	.00	17	2.6	25	.30	.06	.02
8	.01	.02	.00	.00	.00	.00	16	5.8	21	.28	.06	.02
9	.02	.00	.00	.00	.00	.00	13	7.3	18	.30	.07	.02
10	.02	.02	.00	.00	.00	.00	11	7.9	15	.26	.06	.02
11	.02	.02	.00	.00	.00	.00	9.4	7.3	13	.20	.06	.02
12	.01	.02	.00	.00	.00	.00	8.3	5.8	11	.26	.05	.02
13	.01	.02	.00	.00	.00	.00	6.5	5.4	9.1	.20	.05	.02
14	.00	.02	.00	.00	.00	.00	5.3	3.8	7.7	.16	.05	.02
15	.01	.02	.00	.00	.00	.00	4.7	3.1	6.7	.14	.09	.03
16	.01	.02	.00	.00	.00	.00	3.8	3.1	6.0	.09	.06	.03
17	.01	.02	.00	.00	.00	.00	3.8	2.9	5.2	.09	.06	.02
18	.00	.01	.00	.00	.00	2.0	5.6	2.5	4.2	.12	.06	.03
19	.00	.01	.00	.00	.00	5.0	8.5	2.3	3.2	.10	.06	.03
20	.00	.00	.00	.00	.00	100	12	1.8	2.6	.09	.06	.03
21	.00	.00	.00	.00	.00	1000	11	1.7	2.2	.10	.06	.03
22	.00	.00	.00	.00	.00	1690	8.3	1.4	2.0	.09	.05	.03
23	.00	.00	.00	.00	.00	1080	9.1	1.3	1.8	.09	.05	.02
24	.00	.00	.00	.00	.00	542	11	1.2	1.8	.09	.05	.02
25	.00	.00	.00	.00	.00	289	11	3.0	1.7	.09	.05	.02
26	.00	.00	.00	.00	.00	192	10	2.7	1.4	.08	.04	.01
27	.00	.00	.00	.00	.00	149	8.5	2.2	1.1	.09	.05	.01
28	.00	.00	.00	.00	.00	131	6.7	4.8	1.0	.08	.05	.01
29	.00	.00	.00	.00	---	121	6.3	81	.85	.07	.05	.01
30	.00	.00	.00	.00	---	99	6.5	174	.95	.07	.04	.01
31	.00	---	.00	.00	---	78	---	199	---	.07	.04	---
TOTAL	.15	.20	.00	.00	.00	5478.00	454.3	555.6	568.50	7.48	1.82	.68
MEAN	.005	.007	.000	.000	.000	177	15.1	17.9	19.0	.24	.059	.023
MAX	.02	.02	.00	.00	.00	1690	57	199	131	.95	.09	.04
MIN	.00	.00	.00	.00	.00	.00	3.8	1.2	.85	.07	.04	.01
AC-FT	.3	.4	.00	.00	.00	10870	901	1100	1130	15	3.6	1.3

CAL YR 1977 TOTAL 450.46 MEAN 1.23 MAX 75 MIN .00 AC-FT 893
WTR YR 1978 TOTAL 7066.73 MEAN 19.4 MAX 1690 MIN .00 AC-FT 14020

06475000 JAMES RIVER NEAR REDFIELD, SD

LOCATION.--Lat 44°55'13", long 98°25'52" in SW¼NW¼ sec.28, T.117 N., R.63 W., Spink County, Hydrologic Unit 10160006, on right bank at downstream side of highway bridge, 5.2 mi (8.4 km) northeast of Redfield and 5.2 mi (8.4 km) downstream from Turtle Creek.

DRAINAGE AREA.--14,800 mi² (38,300 km²), approximately, of which about 4,600 mi² (11,900 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,236.3 ft (376.82 m) National Geodetic Vertical Datum of 1929. Prior to July 26, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm³), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm³), 303 mi (488 km) upstream since May 1953. Low flow affected by wind at times. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 187 ft³/s (5.296 m³/s), 135,500 acre-ft/yr (167 hm³/yr); median of yearly mean discharges, 120 ft³/s (3.40 m³/s). 86,900 acre-ft/yr (107 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,310 ft³/s (207 m³/s) Apr. 13, 1969, gage height, 24.93 ft (7.599 m); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,800 ft³/s (108 m³/s) Mar. 28; maximum gage height, 20.58 ft (6.273 m) Mar. 26 (backwater from ice); no flow Oct. 1 to Mar. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	3420	1550	862	305	639	101
2	.00	.00	.00	.00	.00	.00	3450	1510	808	337	635	68
3	.00	.00	.00	.00	.00	.00	3340	1470	755	347	624	59
4	.00	.00	.00	.00	.00	.00	3140	1420	722	364	618	64
5	.00	.00	.00	.00	.00	.00	2890	1370	715	358	611	55
6	.00	.00	.00	.00	.00	.00	2580	1330	692	344	599	48
7	.00	.00	.00	.00	.00	.00	2300	1320	663	332	586	62
8	.00	.00	.00	.00	.00	.00	2090	1310	647	336	559	118
9	.00	.00	.00	.00	.00	.00	1950	1290	631	331	536	97
10	.00	.00	.00	.00	.00	.00	1850	1280	605	334	520	46
11	.00	.00	.00	.00	.00	.00	1760	1250	567	348	503	55
12	.00	.00	.00	.00	.00	.00	1690	1230	534	373	486	104
13	.00	.00	.00	.00	.00	.00	1700	1210	513	390	464	114
14	.00	.00	.00	.00	.00	.00	1750	1190	497	419	430	113
15	.00	.00	.00	.00	.00	.00	1780	1170	467	447	402	94
16	.00	.00	.00	.00	.00	.00	1800	1150	434	469	386	72
17	.00	.00	.00	.00	.00	.00	1830	1110	407	496	367	55
18	.00	.00	.00	.00	.00	.00	1870	1080	390	521	335	53
19	.00	.00	.00	.00	.00	5.0	1880	1040	378	542	314	46
20	.00	.00	.00	.00	.00	10	1880	1000	343	561	305	39
21	.00	.00	.00	.00	.00	50	1870	985	332	583	280	36
22	.00	.00	.00	.00	.00	200	1860	958	321	598	242	39
23	.00	.00	.00	.00	.00	500	1840	947	311	615	225	43
24	.00	.00	.00	.00	.00	1000	1820	944	296	636	193	34
25	.00	.00	.00	.00	.00	2000	1790	912	280	643	159	36
26	.00	.00	.00	.00	.00	3000	1760	862	262	639	138	38
27	.00	.00	.00	.00	.00	3500	1720	828	251	637	139	34
28	.00	.00	.00	.00	.00	3700	1680	802	245	646	157	40
29	.00	.00	.00	.00	---	3500	1630	921	234	641	135	39
30	.00	.00	.00	.00	---	3420	1590	983	254	642	118	36
31	.00	---	.00	.00	---	3360	---	928	---	641	113	---
TOTAL	.00	.00	.00	.00	.00	24245.00	62510	35350	14416	14875	11818	1838
MEAN	.000	.000	.000	.000	.000	782	2084	1140	481	480	381	61.3
MAX	.00	.00	.00	.00	.00	3700	3450	1550	862	646	639	118
MIN	.00	.00	.00	.00	.00	.00	1590	802	234	305	113	34
AC-FT	.00	.00	.00	.00	.00	48090	124000	70120	28590	29500	23440	3650

CAL YR 1977 TOTAL 3771.21 MEAN 10.3 MAX 305 MIN .00 AC-FT 7480
WTR YR 1978 TOTAL 165052.00 MEAN 452 MAX 3700 MIN .00 AC-FT 327400

06475000 JAMES RIVER NEAR REDFIELD, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1978.

PERIOD OF DAILY RECORD.--
WATER TEMPERATURES: October 1977 to current year.

REMARKS.--No flow Oct. 1 to Mar. 18. Recorder with temperature attachment, continuous ethyl alcohol-actuated thermograph since Oct. 1, 1977.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1						---	10.5	---	---	29.0	17.0	16.5
2						---	10.0	---	---	29.0	16.5	19.0
3						---	8.0	15.0	---	30.5	14.5	20.0
4						---	6.0	---	---	30.0	14.0	21.5
5						---	5.5	---	---	30.0	14.5	23.0
6						---	6.0	---	---	28.0	15.5	24.0
7						---	9.0	---	---	25.5	16.5	23.5
8						---	8.5	---	---	24.0	17.0	23.5
9						---	9.5	---	---	22.0	17.0	22.0
10						---	8.0	---	---	21.0	18.0	22.0
11						---	8.5	---	---	21.0	18.0	23.0
12						---	9.0	---	---	22.0	19.0	22.0
13						---	8.5	---	---	21.5	20.0	20.5
14						---	8.5	---	---	23.0	20.5	18.5
15						---	8.5	---	---	24.5	19.0	17.0
16						---	8.5	---	---	25.0	16.0	16.5
17						---	8.5	---	---	25.0	17.0	15.5
18						---	6.5	---	---	25.0	16.5	11.5
19						---	5.0	---	23.5	25.0	14.0	11.5
20						---	4.0	---	22.0	23.5	13.5	10.5
21						---	4.5	16.0	20.5	21.0	15.0	10.5
22						---	6.5	18.0	21.0	19.5	15.5	10.5
23						---	8.0	19.0	23.0	19.0	16.5	10.5
24						---	8.0	---	24.5	19.5	19.0	11.0
25						---	8.0	---	25.5	20.0	20.0	12.0
26						---	---	---	27.0	20.5	21.0	13.0
27						4.0	---	---	25.5	20.5	20.5	14.0
28						4.0	---	---	27.0	20.5	18.5	14.0
29						5.0	---	---	29.5	20.0	18.0	14.5
30						5.0	---	---	30.0	18.0	17.0	14.0
31						8.5	---	---	---	18.0	18.0	---
MEAN						5.5	7.5	17.0	25.0	23.5	17.0	17.0

06475000 JAMES RIVER NEAR REDFIELD, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
JUL						
05...	1230	359	28.0	4.8	730	7.8
05...	1420	359	28.0	4.8	720	7.8
05...	1620	357	28.5	4.8	710	7.9
05...	1815	355	28.5	4.7	710	7.9
05...	2015	355	29.0	4.4	700	7.8
05...	2215	354	29.0	4.2	700	7.9
06...	0015	354	28.0	4.1	710	7.9
06...	0230	352	27.5	4.1	700	7.9
06...	0415	352	27.5	4.1	700	7.9
06...	0620	350	27.5	3.9	700	7.9
06...	0810	350	27.0	3.9	710	7.8
06...	1030	350	27.0	4.2	710	7.8
06...	1140	350	27.0	4.2	710	7.6
SEP						
21...	1640	35	15.5	9.6	1040	8.5
21...	1700	35	15.5	9.6	--	--
21...	1900	34	15.5	9.0	--	--
21...	2100	34	14.0	9.0	--	--
21...	2300	34	14.0	8.8	--	--
22...	0100	34	13.0	8.8	--	--
22...	0300	34	13.0	8.8	--	--
22...	0500	34	13.0	8.8	--	--
22...	0700	34	13.0	8.7	--	--
22...	0900	34	13.0	8.8	--	--
22...	1100	34	13.0	9.3	--	--
22...	1300	37	13.0	9.5	--	--
22...	1430	38	14.0	9.6	1030	8.6

06476000 JAMES RIVER AT HURON, SD

LOCATION.--Lat 44°21'49", long 98°11'56", in SW¼SE¼NE¼ sec.6, T.110 N., R.61 W., Beadle County, Hydrologic Unit 10160006, on right bank 15 ft (5 m) upstream from city dam at Huron, 135 ft (41 m) downstream from Chicago and North Western Transportation Co. bridge and 165 ft (50 m) upstream from bridge on business loop U.S. Highway 14.

DRAINAGE AREA.--16,800 mi^2 (43,500 km), approximately, of which about 4,790 mi^2 (12,400 km^2) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1928 to September 1932, August 1943 to current year. Monthly discharge only for some periods, published in WSP 1309. Gage-height records collected at site about 100 ft (30 m) downstream for period of open water each year July 1902 to June 1914 and for period March to June 1915-23 are in reports of U.S. Weather Bureau.

GAGE.--Water-stage recorder and concrete dam. Datum of gage is 1,223.44 ft (372.905 m) National Geodetic Vertical Datum of 1929. Aug. 29, 1928, to Mar. 15, 1929, nonrecording gage at site 100 ft (30 m) downstream at about same datum. Mar. 16, 1929, to June 30, 1932, nonrecording gage 165 ft (50 m) downstream at present datum. Aug. 3, 1943, to Oct. 17, 1951, nonrecording gage at site 15 ft (5 m) downstream at present datum.

REMARKS.--Records fair. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm^3), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm^3), 365 mi (587 km) upstream since May 1953. Satellite telemeter at station.

AVERAGE DISCHARGE.--39 years, 234 ft^3/s (6.627 m^3/s), 169,500 acre-ft/yr (209 hm^3/yr); median of yearly mean discharges, 130 ft^3/s (3.68 m^3/s), 94,200 acre-ft/yr (120 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,000 ft^3/s (255 m^3/s) Apr. 13, 1969, gage height, 16.70 ft (5.090 m); no flow for long periods in most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood between Apr. 11 and 13, 1881, reached a stage of 19.8 ft (6.04 m), from U.S. Weather Bureau publication. Flood of Mar. 22, 1922, reached a stage of 16.5 ft (5.03 m).

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,820 ft^3/s (165 m^3/s) Mar. 30, gage height, 15.22 ft (4.639 m); no flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	12	.00	.00	5560	1700	1420	287	575	172
2	.00	.00	.00	9.3	.00	.00	5400	1570	1210	288	592	177
3	.00	.00	.00	6.8	.00	.00	5200	1470	1080	293	588	162
4	.00	.00	.00	3.7	.00	.00	5000	1420	992	271	574	151
5	.00	.00	.00	2.0	.00	.00	4850	1370	919	330	566	146
6	.00	.00	.00	1.3	.00	.00	4640	1330	847	358	565	138
7	.00	.00	.00	.50	.00	.00	4250	1320	594	366	549	131
8	.00	.00	.00	.36	.00	.20	3780	1380	535	330	567	122
9	.00	.00	.00	.30	.00	.50	3420	1330	564	348	537	131
10	.00	.00	.00	.15	.00	1.5	3050	1250	610	314	486	117
11	.00	.00	.00	.00	.00	3.5	2740	1290	653	282	462	120
12	.00	.00	.00	.00	.00	7.0	2460	1300	580	322	437	127
13	.00	.00	.00	.00	.00	12	2200	1250	507	348	409	115
14	.00	.00	.00	.00	.00	20	2050	1220	483	357	427	114
15	.00	.00	.00	.00	.00	36	1990	1190	479	384	445	113
16	.00	.00	.00	.00	.00	68	1990	1160	496	402	402	111
17	.00	.00	.00	.00	.00	68	2010	1210	454	411	377	112
18	.00	.00	.00	.00	.00	108	2080	1170	406	440	365	108
19	.00	.00	.00	.00	.00	200	2100	1170	364	450	328	106
20	.00	.00	.00	.00	.00	750	2050	1140	406	460	275	103
21	.00	.00	.00	.00	.00	1200	2040	1050	362	510	287	98
22	.00	.00	.00	.00	.00	1300	2040	1020	342	564	276	83
23	.00	.00	.00	.00	.00	1650	2080	792	333	553	281	91
24	.00	.00	.00	.00	.00	1880	2070	816	336	542	261	87
25	.00	.00	.00	.00	.00	2500	2010	1060	328	608	232	70
26	.00	.00	.00	.00	.00	3080	1970	1030	326	641	220	81
27	.00	.00	.00	.00	.00	3880	1930	991	278	597	217	73
28	.00	.00	2.4	.00	.00	4820	1900	932	260	564	223	64
29	.00	.00	15	.00	---	5550	1850	1020	248	597	210	74
30	.00	.00	16	.00	---	5790	1790	1300	248	586	200	69
31	.00	---	17	.00	---	5730	---	1410	---	586	189	---
TOTAL	.00	.00	50.40	36.41	.00	38654.70	86500	37661	16660	13389	12122	3366
MEAN	.000	.000	1.63	1.17	.000	1247	2883	1215	555	432	391	112
MAX	.00	.00	17	12	.00	5790	5560	1700	1420	641	592	177
MIN	.00	.00	.00	.00	.00	.00	1790	792	248	271	189	64
AC-FT	.00	.00	100	72	.00	76670	171600	74700	33050	26560	24040	6680

CAL YR 1977 TOTAL 14039.72 MEAN 38.5 MAX 1900 MIN .00 AC-FT 27850
WTR YR 1978 TOTAL 208439.51 MEAN 571 MAX 5790 MIN .00 AC-FT 413400

06476000 JAMES RIVER AT HURON, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1949-52, 1956 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: September 1956 to October 1970, September 1971 to current year.
WATER TEMPERATURES: September 1956 to October 1970, September 1971 to current year.

REMARKS.--No flow Oct. 1 to Dec. 27, Jan. 11 to Mar. 7.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,170 micromhos Mar. 14, 1965; minimum daily, 175 micromhos Mar. 30, Apr. 2, 1960.
WATER TEMPERATURES: Maximum daily, 31.0°C June 2, 1968; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 3,100 micromhos Mar. 7, 8; minimum daily, 200 micromhos Apr. 1-3.
WATER TEMPERATURES: Maximum daily, 27.0°C July 3, 17-19; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
OCT										
28...	1330	.00	1240	8.7	11.0	420	180	87	48	130
NOV										
30...	1330	.00	1360	8.5	.0	440	180	95	50	120
DEC										
21...	1515	.00	1530	8.0	.0	550	270	120	61	140
MAR										
03...	1430	.00	3300	7.5	.0	1300	720	290	150	320
24...	1330	1880	470	7.6	1.0	120	15	29	12	34
30...	1400	5800	240	7.6	6.0	59	0	14	5.8	12
APR										
12...	1230	2430	400	7.8	8.0	110	24	26	12	28
JUN										
02...	1500	1190	590	8.2	18.0	190	39	45	20	51
28...	1400	243	750	8.0	28.0	260	20	57	28	64

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS- SOLVED (TONS PER DAY) (70302)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) (00631)	PHOS- PHORUS, TOTAL (MG/L AS P) (00665)	PHOS- PHORUS, DIS- SOLVED (MG/L AS P) (00666)	PHOS- PHORUS, ORTHO, DIS- SOLVED (MG/L AS P) (00671)	BORON, DIS- SOLVED (UG/L AS B) (01020)
OCT									
28...	16	872	1.19	.00	.01	.19	.09	.06	500
NOV									
30...	18	879	1.20	.00	.01	.20	.09	.07	480
DEC									
21...	18	1040	1.41	.00	.03	.15	.06	.02	500
MAR									
03...	29	2460	3.35	.00	.38	.55	.50	.45	920
24...	8.9	260	.35	1320	2.7	.90	.75	.72	150
30...	6.0	125	.17	1960	.87	.61	.32	.17	90
APR									
12...	11	237	.32	1560	.71	.67	.47	.47	130
JUN									
02...	10	372	.51	1200	.16	.51	.38	.35	170
28...	15	488	.66	320	.01	.50	.38	.31	230

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1200	1280	1280	1550	2100	2900	200	420	620	830	660	780
2	1200	1280	1290	1550	2150	2900	200	470	620	830	650	780
3	1220	1280	1300	1550	2150	2950	200	520	600	800	650	770
4	1210	1280	1300	1550	2200	2950	250	530	600	810	650	780
5	1210	1270	1290	1540	2250	3000	270	540	600	810	680	790
6	1220	1270	1290	1540	2300	3000	260	550	620	810	690	800
7	1230	1260	1310	1550	2350	3100	260	560	640	810	690	800
8	1220	1260	1340	1550	2400	3100	260	570	660	810	700	800
9	1230	1270	1320	1540	2450	2250	280	570	680	810	720	800
10	1230	1280	1380	1550	2450	1600	310	570	670	820	730	800
11	1240	1270	1360	1540	2500	1550	320	590	680	810	740	800
12	1240	1260	1390	1550	2500	1550	310	590	700	810	740	810
13	1240	1280	1400	1540	2500	1550	350	590	700	810	750	820
14	1230	1270	1420	1540	2550	1600	360	590	730	800	760	820
15	1230	1270	1420	1530	2550	1550	350	590	740	800	760	820
16	1240	1270	1420	1530	2550	1550	340	590	750	770	760	820
17	1250	1260	1410	1520	2600	1550	340	590	750	770	770	820
18	1240	1270	1400	1530	2600	770	330	590	770	760	770	820
19	1250	1280	1410	1520	2650	540	330	590	780	760	780	830
20	1250	1280	1420	1520	2700	280	340	590	780	760	780	820
21	1250	1270	1430	1510	2700	250	340	590	800	770	780	830
22	1260	1260	1450	1510	2700	230	330	600	800	800	800	830
23	1260	1270	1450	1510	2750	380	330	600	810	590	800	830
24	1250	1280	1460	1500	2750	390	340	610	810	790	790	830
25	1260	1280	1470	1500	2800	380	340	610	810	800	790	840
26	1260	1290	1480	1520	2850	250	330	610	810	820	790	840
27	1260	1290	1480	1920	2850	260	350	610	810	790	800	840
28	1270	1290	1490	1940	2900	210	350	610	830	780	800	860
29	1270	1290	1500	1980	---	220	370	610	840	720	790	860
30	1270	1290	1510	2000	---	220	400	620	840	690	800	860
31	1280	---	1520	1970	---	220	---	620	---	690	800	---
MEAN	1240	1280	1400	1600	2530	1400	311	577	728	782	747	817

06476000 JAMES RIVER AT HURON, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
OCT									
28...	39	2.8	18	280	3	230	370	61	.3
NOV									
30...	36	2.5	18	320	0	260	360	59	.3
DEC									
21...	35	2.6	20	340	0	280	450	67	.3
MAR									
03...	34	3.8	32	760	0	620	1100	160	.5
24...	35	1.3	13	130	0	110	63	22	.1
30...	26	.7	11	82	0	67	23	7.9	.0
APR									
12...	32	1.1	13	110	0	90	72	16	.1
JUN									
02...	35	1.6	12	190	0	160	100	38	.2
28...	33	1.7	15	290	0	240	120	45	.2

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13.0	9.0	.0	.0	.0	.0	2.0	10.0	18.0	25.0	24.0	22.0
2	12.0	9.0	.0	.0	.0	.0	2.0	10.0	18.0	26.0	23.0	22.0
3	11.0	9.0	.0	.0	.0	.0	3.0	10.0	18.0	27.0	21.0	22.0
4	12.0	9.0	.0	.0	.0	.0	5.0	12.0	19.0	26.0	20.0	22.0
5	12.0	9.0	.0	.0	.0	.0	7.0	13.0	20.0	26.0	21.0	24.0
6	11.0	9.0	.0	.0	.0	.0	7.0	13.0	20.0	26.0	22.0	24.0
7	11.0	9.0	.0	.0	.0	.0	7.0	13.0	20.0	25.0	23.0	24.0
8	11.0	9.0	.0	.0	.0	.0	7.0	10.0	20.0	25.0	24.0	24.0
9	9.0	9.0	.0	.0	.0	.0	8.0	9.0	20.0	21.0	23.0	24.0
10	9.0	2.0	.0	.0	.0	.0	8.0	12.0	21.0	22.0	23.0	24.0
11	9.0	2.0	.0	.0	.0	.0	8.0	14.0	21.0	22.0	24.0	23.0
12	9.0	2.0	.0	.0	.0	.0	8.0	14.0	21.0	22.0	24.0	23.0
13	8.0	1.0	.0	.0	.0	.0	7.0	13.0	21.0	22.0	24.0	23.0
14	8.0	1.0	.0	.0	.0	.0	6.0	15.0	22.0	22.0	26.0	21.0
15	8.0	1.0	.0	.0	.0	.0	7.0	15.0	23.0	25.0	24.0	20.0
16	8.0	1.0	.0	.0	.0	1.0	7.0	16.0	23.0	26.0	22.0	20.0
17	8.0	1.0	.0	.0	.0	1.0	7.0	17.0	23.0	27.0	22.0	20.0
18	8.0	1.0	.0	.0	.0	1.0	7.0	17.0	23.0	27.0	22.0	20.0
19	8.0	1.0	.0	.0	.0	1.0	7.0	17.0	22.0	27.0	21.0	19.0
20	9.0	1.0	.0	.0	.0	1.0	7.0	17.0	21.0	26.0	21.0	19.0
21	9.0	.0	.0	.0	.0	1.5	5.0	18.0	20.0	26.0	21.0	18.0
22	9.0	.0	.0	.0	.0	1.5	5.0	18.0	20.0	26.0	21.0	15.0
23	9.0	.0	.0	.0	.0	2.0	5.0	19.0	22.0	26.0	23.0	15.0
24	9.0	.0	.0	.0	.0	2.0	5.0	20.0	22.0	24.0	22.0	15.0
25	9.0	.0	.0	.0	.0	2.0	5.0	20.0	24.0	25.0	22.0	15.0
26	9.0	.0	.0	.0	.0	2.0	9.0	21.0	24.0	25.0	25.0	14.0
27	9.0	.0	.0	.0	.0	2.0	10.0	22.0	24.0	24.0	26.0	14.0
28	9.0	.0	.0	.0	.0	2.0	10.0	22.0	24.0	24.0	25.0	14.0
29	9.0	.0	.0	.0	---	2.0	10.0	22.0	24.0	25.0	24.0	14.0
30	9.0	.0	.0	.0	---	2.0	10.0	20.0	25.0	24.0	23.0	14.0
31	9.0	---	.0	.0	---	2.0	---	20.0	---	24.0	22.0	---
MEAN	9.5	3.0	.0	.0	.0	1.0	6.5	16.0	21.5	25.0	23.0	19.5

06476500 SAND CREEK NEAR ALPENA, SD

LOCATION.--Lat 44°09'15", long 98°26'06", in NE¼NE¼ sec.19, T.108 N., R.63 W., Jerauld County, Hydrologic Unit 10160006, on left bank 5 ft (2 m) downstream from highway bridge, 4.0 mi (6.4 km) southwest of Alpena, 7.0 mi (11.3 km) upstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 10.5 mi (16.9 km) upstream from interlink with Cain Creek.

DRAINAGE AREA.--240 mi^2 (622 km^2), approximately.

PERIOD OF RECORD.--March 1950 to current year.

REVISED RECORDS.--WSP 1309: 1950(M).

GAGE.--Water-stage recorder. Altitude of gage is 1,315 ft (401 m). Prior to Sept. 17, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 9.49 ft^3/s (0.269 m^3/s), 6,880 acre-ft/yr (8.48 hm^3/yr); median of yearly mean discharges, 6.3 ft^3/s (0.18 m^3/s), 4,600 acre-ft/yr (5.7 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 ft^3/s (63.4 m^3/s) Mar. 28, 1960, gage height, 13.35 ft (4.069 m); maximum gage height, 14.1 ft (4.30 m) Mar. 28, 1950 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 907 ft^3/s (25.7 m^3/s) at 2315 hours Mar. 22, gage height, 12.31 ft (3.752 m), no other peak above base of 50 ft^3/s (1.416 m^3/s); no flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Stage-discharge relation affected by ice Mar. 11-20)

7.4	0	7.8	1.7	9.0	59	12.0	710
7.5	.12	7.9	3.1	9.5	108	13.0	1,510
7.6	.40	8.1	9.1	10.0	172		
7.7	.88	8.4	20	11.0	335		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	34	7.0	2.0	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	31	6.1	1.9	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	22	5.7	1.7	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	19	5.3	1.4	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	20	4.9	1.3	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	17	4.3	1.1	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	15	5.7	.79	.00	.00	.00
8	.00	.00	.00	.00	.00	.00	15	6.1	.68	.00	.00	.00
9	.00	.00	.00	.00	.00	.00	13	5.6	.60	.00	.00	.00
10	.00	.00	.00	.00	.00	.00	12	6.5	.49	.00	.00	.00
11	.00	.00	.00	.00	.00	.00	12	7.1	1.6	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	11	7.0	.88	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	10	5.6	.80	.00	.00	.00
14	.00	.00	.00	.00	.00	.00	9.7	5.0	1.4	.00	.00	.00
15	.00	.00	.00	.00	.00	.00	9.0	4.4	1.0	.00	.00	.00
16	.00	.00	.00	.00	.00	2.0	8.0	3.7	.72	.00	.00	.00
17	.00	.00	.00	.00	.00	5.0	7.4	3.1	.57	.00	.00	.00
18	.00	.00	.00	.00	.00	15	8.3	2.7	.46	.00	.00	.00
19	.00	.00	.00	.00	.00	150	8.9	2.3	.35	.00	.00	.00
20	.00	.00	.00	.00	.00	500	10	1.8	.27	.00	.00	.00
21	.00	.00	.00	.00	.00	590	13	1.8	.23	.00	.00	.00
22	.00	.00	.00	.00	.00	752	13	1.8	.23	.00	.00	.00
23	.00	.00	.00	.00	.00	782	11	1.6	.26	.00	.00	.00
24	.00	.00	.00	.00	.00	472	9.8	1.7	.23	.00	.00	.00
25	.00	.00	.00	.00	.00	268	10	3.6	.22	.00	.00	.00
26	.00	.00	.00	.00	.00	203	11	1.8	.15	.00	.00	.00
27	.00	.00	.00	.00	.00	127	10	1.5	.09	.00	.00	.00
28	.00	.00	.00	.00	.00	80	9.2	1.5	.07	.00	.00	.00
29	.00	.00	.00	.00	---	60	8.1	5.7	.03	.00	.00	.00
30	.00	.00	.00	.00	---	48	8.0	2.8	.00	.00	.00	.00
31	.00	---	.00	.00	---	37	---	2.1	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	4091.00	395.4	125.8	21.52	.00	.00	.00
MEAN	.000	.000	.000	.000	.000	132	13.2	4.06	.72	.000	.000	.000
MAX	.00	.00	.00	.00	.00	782	34	7.1	2.0	.00	.00	.00
MIN	.00	.00	.00	.00	.00	.00	7.4	1.5	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	8110	784	250	43	.00	.00	.00

CAL YR 1977 TOTAL 793.10 MEAN 2.17 MAX 115 MIN .00 AC-FT 1570
WTR YR 1978 TOTAL 4633.72 MEAN 12.7 MAX 782 MIN .00 AC-FT 9190

06477000 JAMES RIVER NEAR FORESTBURG, SD

LOCATION.--Lat 43°58'26", long 98°04'14", in SW¼SW¼NW¼ sec.20, T.106 N., R.60 W., Sanborn County, Hydrologic Unit 10160011, on right bank 5.0 ft (2 m) downstream from highway bridge, 3.8 mi (6.1 km) southeast of Forestburg, 5.4 mi (8.7 km) downstream from Chicago, Milwaukee, St. Paul and Pacific Railroad bridge, and 6.1 mi (9.8 km) downstream from Sand Creek.

DRAINAGE AREA.--18,600 mi² (48,200 km²), approximately, of which about 4,790 mi² (12,400 km²) is probably noncontributing.

PERIOD OF RECORD.--March 1950 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,208.34 ft (368.302 m) National Geodetic Vertical Datum of 1929 (Bureau of Reclamation bench mark). Prior to Sept. 5, 1951, nonrecording gage at same site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm³), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm³), 408 mi (656 km) upstream since May 1953. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--28 years, 283 ft³/s (8.015 m³/s), 205,000 acre-ft/yr (253 hm³/yr); median of yearly mean discharges, 140 ft³/s (3.96 m³/s), 101,000 acre-ft/yr (120 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,500 ft³/s (354 m³/s) Apr. 9, 1969, gage height, 17.16 ft (5.230 m); no flow at times in 1950, 1955, 1959, 1961, 1970, 1976, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in March 1920 and March 1922 reached a stage of about 18 ft (5.49 m), from information by local residents.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,830 ft³/s (137 m³/s) Apr. 2, gage height, 15.24 ft (4.645 m); minimum daily, 0.19 ft³/s (0.005 m³/s) Oct. 4.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.38	14	4.5	.90	.23	.53	4760	1920	1250	244	602	194
2	.31	15	4.5	.97	.21	.51	4770	1870	1360	263	625	193
3	.38	15	4.5	1.1	.23	.51	4710	1810	1380	280	605	183
4	.19	15	4.4	.90	.25	.51	4620	1750	1320	284	594	172
5	.23	13	4.0	.76	.27	.47	4470	1680	1220	276	586	159
6	.31	12	3.1	.77	.31	.34	4360	1630	1120	296	575	153
7	.61	10	2.9	.75	.37	.29	4270	1610	1010	327	565	141
8	.84	9.2	2.8	.75	.45	.33	4110	1600	862	349	554	129
9	.81	11	2.0	.74	.56	.32	3940	1610	681	351	545	121
10	.67	13	1.6	.70	.68	.32	3760	1580	596	343	533	119
11	.75	7.5	1.4	.60	.85	.50	3520	1530	597	330	504	117
12	.65	6.3	1.4	.48	1.0	1.5	3280	1480	645	306	470	119
13	.55	10	1.6	.36	.85	2.0	3060	1450	631	299	448	130
14	.49	12	1.7	.51	.75	2.5	2840	1410	581	321	425	124
15	.49	12	1.8	.47	.60	4.0	2630	1360	532	338	418	112
16	.46	10	2.1	.58	.56	15	2450	1310	510	349	422	105
17	.38	9.3	2.9	.70	.48	275	2320	1270	498	358	424	107
18	.53	8.2	3.0	.67	.40	325	2290	1240	481	370	401	113
19	.50	8.0	3.2	.59	.46	450	2270	1220	446	390	382	112
20	.45	7.9	2.9	.52	.54	700	2240	1190	407	425	356	109
21	.42	8.1	2.6	.42	.64	1250	2200	1170	395	456	320	99
22	.45	6.0	2.7	.42	.74	2050	2170	1120	391	482	295	90
23	.54	5.5	2.9	.36	.74	2580	2170	1060	398	519	284	82
24	.61	5.1	2.5	.39	.70	2700	2160	975	392	534	278	76
25	.67	4.9	2.2	.55	.65	2860	2140	875	401	539	269	75
26	.69	4.8	1.8	.59	.67	2990	2120	905	360	557	248	71
27	.87	4.6	1.4	.40	.60	3090	2070	995	332	585	230	63
28	2.6	4.5	.94	.36	.55	3230	2040	1020	308	597	230	60
29	8.4	4.4	.86	.32	---	3400	2010	1040	274	587	233	58
30	13	4.6	.78	.28	---	3880	1970	1030	253	589	218	55
31	15	---	.95	.25	---	4500	---	1120	---	595	205	---
TOTAL	53.23	270.9	75.93	18.16	15.34	34309.63	91720	41830	19631	12539	12844	3441
MEAN	1.72	9.03	2.45	.59	.55	1107	3057	1349	654	404	414	115
MAX	15	15	4.5	1.1	1.0	4500	4770	1920	1380	597	625	194
MIN	.19	4.4	.78	.25	.21	.29	1970	875	253	244	205	55
AC-FT	106	537	151	36	30	68050	181900	82970	38940	24870	25480	6830

CAL YR 1977 TOTAL 33757.14 MEAN 92.5 MAX 3960 MIN .00 AC-FT 66960
WTR YR 1978 TOTAL 216748.19 MEAN 594 MAX 4770 MIN .19 AC-FT 429900

06477500 FIRESTEEL CREEK NEAR MOUNT VERNON, SD

LOCATION.--Lat 43°46'30", long 98°14'33", in SW¼SW¼ sec.26, T.104 N., R.62 W., Davison County, Hydrologic Unit 10160011, near center of span on downstream side of highway bridge, 4.5 mi (7.2 km) north of Mount Vernon, 5.2 mi (8.4 km) downstream from West Firesteel Creek, and 12 mi (19 km) northwest of Mitchell.

DRAINAGE AREA.--540 mi^2 (1,400 km^2), approximately.

PERIOD OF RECORD.--September 1955 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,297.22 ft (395.393 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, nonrecording gage and crest-stage gage.

REMARKS.--Records fair except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--23 years, 22.7 ft^3/s (0.643 m^3/s), 16,450 acre-ft/yr (20.3 hm^3/yr); median of yearly mean discharges, 8.9 ft^3/s (0.25 m^3/s), 6,400 acre-ft/yr (7.9 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,610 ft^3/s (187 m^3/s) Apr. 4, 1969, gage height, 15.34 ft (4.676 m); maximum gage height, 17.12 ft (5.218 m) Apr. 3, 1969 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft^3/s (2.83 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 21	2100	*2280	64.6	*11.61	3.539	May 29	0900	131	3.71	4.66	1.420

No flow for many days.

Rating table (gage height, in feet, and discharge, in cubic feet per second)
(Shifting-control method used Oct. 1 to Nov. 21, Mar. 22 to Apr. 7, July 21, 22; stage-discharge relation affected by ice Nov. 22 to Mar. 21)

2.43	0	2.8	1.6	3.5	34	7.0	557
2.5	.04	2.9	3.0	4.0	72	9.0	1,210
2.6	.35	3.0	5.5	5.0	174	11.0	2,170
2.7	.89	3.2	15	6.0	342		

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.02	.04	.00	.00	.00	65	23	42	.83	.01	.00
2	.01	.02	.04	.00	.00	.00	62	25	62	.71	.00	.00
3	.00	.02	.04	.00	.00	.00	42	18	66	.60	.00	.01
4	.00	.01	.03	.00	.00	.00	33	17	66	.50	.00	.00
5	.00	.03	.03	.00	.00	.00	30	14	49	.25	.00	.00
6	.02	.05	.03	.00	.00	.00	28	11	40	.30	.00	.00
7	.08	.06	.03	.00	.00	.00	26	16	38	.40	.00	.00
8	.08	.30	.02	.00	.00	.00	22	17	33	.71	.00	.00
9	.05	1.1	.02	.00	.00	.00	19	17	24	.95	.00	.00
10	.06	.77	.01	.00	.00	1.0	16	23	21	.65	.00	.00
11	.02	.83	.01	.00	.00	2.0	14	18	17	.35	.00	.00
12	.02	.71	.02	.00	.00	5.0	12	17	16	.13	.00	.00
13	.01	.65	.02	.00	.00	30	11	16	8.1	.30	.00	.01
14	.01	.77	.03	.00	.00	80	14	20	6.4	.16	.00	.02
15	.01	.55	.03	.00	.00	90	12	15	5.5	.10	.00	.02
16	.01	.40	.03	.00	.00	100	8.1	15	5.2	.03	.00	.02
17	.02	.45	.03	.00	.00	120	8.1	12	5.2	.02	.00	.02
18	.01	.60	.03	.00	.00	160	13	10	5.0	.00	.00	.03
19	.01	.55	.02	.00	.00	300	20	7.6	4.2	.00	.00	.02
20	.01	.60	.02	.00	.00	800	25	5.9	3.0	.00	.00	.02
21	.01	.55	.02	.00	.00	1800	29	3.8	2.6	.40	.00	.02
22	.02	.30	.02	.00	.00	2000	28	3.5	2.4	.10	.00	.01
23	.02	.20	.02	.00	.00	1200	41	2.8	1.8	.03	.00	.01
24	.03	.15	.01	.00	.00	675	47	2.8	1.5	.05	.00	.01
25	.10	.10	.01	.00	.00	402	46	3.2	1.6	.06	.00	.01
26	.08	.08	.01	.00	.00	249	36	2.8	1.4	.10	.00	.00
27	.06	.06	.01	.00	.00	161	29	2.6	1.3	.06	.00	.00
28	.05	.04	.01	.00	.00	125	23	9.8	.89	.01	.00	.00
29	.02	.04	.01	.00	---	96	25	102	.83	.02	.00	.01
30	.01	.04	.01	.00	---	79	23	64	.89	.01	.00	.00
31	.04	---	.01	.00	---	70	---	26	---	.01	.00	---
TOTAL	.87	10.05	.67	.00	.00	8545.00	807.2	540.8	531.81	7.84	.01	.24
MEAN	.028	.34	.022	.000	.000	276	26.9	17.4	17.7	.25	.000	.008
MAX	.10	1.1	.04	.00	.00	2000	65	102	66	.95	.01	.03
MIN	.00	.01	.01	.00	.00	.00	8.1	2.6	.83	.00	.00	.00
AC-FT	1.7	20	1.3	.00	.00	16950	1600	1070	1050	16	.02	.5

CAL YR 1977 TOTAL 2905.65 MEAN 7.96 MAX 750 MIN .00 AC-FT 5760
WTR YR 1978 TOTAL 10444.49 MEAN 28.6 MAX 2000 MIN .00 AC-FT 20720

06478052 ENEMY CREEK NEAR MITCHELL, SD

LOCATION.--Lat 43°38'33", long 97°59'09", in NE¼NE¼ sec.13, T.102 N., R.60 W., Davison County, Hydrologic Unit 10160011, on left bank 3 ft (0.9 m) downstream from highway bridge, 4.5 mi (7.2 km) southeast of Mitchell, and 7.3 mi (11.7 km) above mouth.

DRAINAGE AREA.--181 mi^2 (469 km^2), approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,280 ft (390 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,390 ft^3/s (39.4 m^3/s) Mar. 19, 1978, gage height, 11.27 ft (3.435 m); maximum gage height, 12.54 ft (3.822 m) Mar. 19, 1978 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 20 ft^3/s (0.57 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 19	1500	ice jam		*12.54	3.822
Mar. 19	2200	*1390	39.4	11.27	3.435
Apr. 9	0015	21	0.59	5.86	1.786
Apr. 19	2100	105	2.97	6.79	2.070
Apr. 25	1100	63	1.78	6.44	1.963
May 9	1600	26	0.74	6.04	1.841

No flow for many days.

REVISIONS.--The maximum discharges for the water year 1977 and, revised daily discharges, in cubic feet per second, for high-water period in March 1977 are given below. These figures supersede those published in the report for 1977.

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 13	0130	*339	9.60	*8.17	2.490
May 20	1900	22	0.62	5.87	1.789
Sept. 14	0130	29	0.82	5.99	1.826

Mar. 11... 8.4
12... 144
13... 126
14... 26
Mar. 15... 6.1
16... 3.6
17... 2.4
18... 1.5
Mar. 19... 0.80
20... .40
21... .35
22... .27
Mar. 23... 0.27
24... .23
25... .31
Mar. 26... 0.35
27... .45
28... .90
Mar. 29... 2.4
30... 2.0
31... 1.7

Month	Total	Mean	Max	Min	Ac-ft
March 1977	328.43	10.6	144	0	651
Wtr Yr 1977	475.62	1.30	144	0	943

06478052 ENEMY CREEK NEAR MITCHELL, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.20	2.6	.91	.06	.00	.00	16	16	7.4	.29	1.3	.09
2	.23	2.1	.88	.06	.00	.00	16	14	7.9	.13	.75	.06
3	.26	2.6	.88	.06	.00	.00	16	13	15	.11	.52	.04
4	.26	3.1	.91	.06	.00	.00	16	12	11	.11	.36	.02
5	.36	2.3	.70	.06	.00	.00	17	10	7.9	.15	.15	.00
6	.29	1.9	.37	.06	.00	.00	19	8.9	6.3	.52	.06	.00
7	.40	1.5	.35	.06	.00	.01	20	9.6	4.3	1.6	.02	.00
8	.54	3.1	.28	.05	.00	.02	20	15	3.1	1.5	.01	.00
9	.80	3.6	.16	.03	.00	.03	20	24	2.4	1.1	.00	.00
10	.90	2.8	.08	.02	.00	.05	20	23	1.8	.73	.00	.00
11	.73	1.7	.09	.02	.00	1.5	20	17	1.1	.41	.00	.00
12	.90	1.4	.10	.01	.00	2.0	18	13	.71	.28	.00	.00
13	1.5	2.3	.12	.01	.00	3.0	15	11	.40	.17	.00	.00
14	2.2	2.1	.17	.01	.00	3.5	14	9.4	.31	.15	.00	.00
15	3.4	2.3	.20	.01	.00	10	12	8.2	1.4	.13	.00	.00
16	3.9	2.8	.20	.01	.00	75	12	7.5	1.8	.11	.01	.00
17	3.2	3.8	.29	.01	.00	250	12	6.7	1.7	.07	.01	.00
18	3.8	4.1	.25	.01	.00	350	24	6.2	1.7	.04	.01	.00
19	3.6	2.7	.17	.01	.00	700	68	6.1	1.0	.02	.00	.00
20	2.9	4.3	.17	.01	.00	1040	83	5.6	.20	.01	.00	.00
21	2.3	3.1	.13	.01	.00	612	49	5.0	.40	1.8	.00	.00
22	2.3	2.8	.10	.01	.00	292	33	5.0	.78	3.1	.00	.00
23	2.3	2.1	.10	.01	.00	173	31	4.5	.71	1.9	.00	.00
24	2.3	1.2	.10	.01	.01	97	42	4.3	.96	1.1	.00	.00
25	2.6	.89	.10	.01	.01	62	59	4.0	1.3	2.2	.00	.00
26	2.6	.71	.08	.01	.01	43	43	3.4	1.1	3.6	.06	.00
27	2.3	.64	.06	.01	.01	34	29	3.4	1.3	6.2	.06	.00
28	2.1	.63	.06	.00	.01	27	22	2.9	.77	5.4	.16	.00
29	1.7	.67	.07	.00	---	23	18	4.0	.44	3.9	.10	.00
30	1.7	.74	.08	.00	---	20	17	6.7	.26	2.7	.06	.00
31	2.8	---	.06	.00	---	18	---	6.9	---	1.8	.10	---
TOTAL	55.37	66.58	8.22	.70	.05	3836.11	801	286.3	85.44	41.33	3.74	.21
MEAN	1.79	2.22	.27	.023	.002	124	26.7	9.24	2.85	1.33	.12	.007
MAX	3.9	4.3	.91	.06	.01	1040	83	24	15	6.2	1.3	.09
MIN	.20	.63	.06	.00	.00	.00	12	2.9	.20	.01	.00	.00
AC-FT	110	132	16	1.4	.10	7610	1590	568	169	82	7.4	.4

CAL YR 1977 TOTAL 605.79 MEAN 1.66 MAX 144 MIN .00 AC-FT 1200
WTR YR 1978 TOTAL 5185.05 MEAN 14.2 MAX 1040 MIN .00 AC-FT 10280

06478390 WOLF CREEK NEAR CLAYTON, SD

LOCATION.--Lat 43°22'18", long 97°36'12", in SE¼SE¼SW¼ sec.20, T.99 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on left bank 5 ft (2 m) upstream from highway bridge, 4.1 mi (6.6 km) upstream from mouth and 5.6 mi (9.0 km) southeast of Clayton.

DRAINAGE AREA.--386 mi² (1,000 km²), approximately.

PERIOD OF RECORD.--October 1975 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,210 ft (369 m), from topographic map.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,230 ft³/s (34.8 m³/s) Mar. 19, 1978, gage height, 11.39 ft (3.472 m); maximum gage height, 11.73 ft (3.575 m) Mar. 19, 1978 (backwater from ice); no flow at times in 1976, 1977.

EXTREMES FOR CURRENT PERIOD.--Water year 1977: Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 15	unknown	250	7.08	ice jam		Sept. 23	1330	*406	11.5	*8.24	2.512
Sept. 12	unknown	393	11.1	8.17	2.490						

No flow for many days.

Water year 1978: Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Oct. 1	0630	199	5.64	6.73	2.051	Apr. 19	0430	218	6.17	6.49	1.978
Mar. 19	1430	ice jam		*11.73	3.575	June 26	0530	204	5.78	6.61	2.015
Mar. 19	2400	*1230	34.8	11.39	3.472	July 23	1530	209	5.92	6.38	1.945
Apr. 6	1045	270	7.65	6.90	2.103						

Minimum daily discharge, 0.37 ft³/s (0.010 m³/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.16	9.8	2.1	.12	.00	.00	37
2	.00	.00	.00	.00	.00	.14	9.0	2.1	.04	.00	.00	20
3	.00	.00	.00	.00	.00	.12	8.1	2.3	.01	.00	.00	12
4	.00	.00	.00	.00	.00	.11	7.6	2.6	.00	.00	.00	13
5	.00	.00	.00	.00	.00	.10	7.5	2.8	.00	.00	.00	10
6	.00	.00	.00	.00	.00	.10	7.3	2.5	.00	.00	.00	9.2
7	.00	.00	.00	.00	.00	.10	6.6	2.2	.00	.00	.00	7.0
8	.00	.00	.00	.00	.00	.11	6.5	2.1	.00	.00	.00	5.6
9	.00	.00	.00	.00	.00	.15	5.9	1.7	.00	.00	.00	6.1
10	.00	.00	.00	.00	.00	.18	5.3	1.5	.00	.07	.00	30
11	.00	.00	.00	.00	.00	.80	5.0	1.3	.00	17	.00	80
12	.00	.00	.00	.00	.00	3.0	4.8	1.2	.00	6.6	.00	96
13	.00	.00	.00	.00	.00	9.0	4.5	1.0	.00	1.0	.00	21
14	.00	.00	.00	.00	.00	60	5.5	.84	.00	.11	.00	102
15	.00	.00	.00	.00	.00	200	5.4	.69	.00	.00	.00	54
16	.00	.00	.00	.00	.00	150	5.0	.58	.05	.00	19	31
17	.00	.00	.00	.00	.00	95	4.4	.44	1.4	.00	3.2	19
18	.00	.00	.00	.00	.00	58	4.2	.27	.75	.00	.37	14
19	.00	.00	.00	.00	.00	40	4.1	.24	.49	.00	.00	9.4
20	.00	.00	.00	.00	.00	31	5.5	.72	.18	.00	.00	5.7
21	.00	.00	.00	.00	.01	27	6.7	5.1	.11	.00	.00	3.9
22	.00	.00	.00	.00	.05	19	5.7	4.7	.30	.00	.00	3.3
23	.00	.00	.00	.00	.10	16	4.2	3.0	4.2	.00	9.7	110
24	.00	.00	.00	.00	.15	13	3.5	1.7	1.2	.00	.47	41
25	.00	.00	.00	.00	.25	11	3.1	.73	.59	.00	4.0	17
26	.00	.00	.00	.00	.23	11	2.8	.54	.25	.00	40	10
27	.00	.00	.00	.00	.20	10	2.4	.98	1.4	.00	7.0	6.4
28	.00	.00	.00	.00	.18	10	2.3	.94	.48	.00	1.8	4.3
29	.00	.00	.00	.00	---	18	2.1	.56	.02	.00	35	3.3
30	.00	.00	.00	.00	---	16	2.1	.26	.00	.00	30	15
31	.00	---	.00	.00	---	12	---	.27	---	.00	34	---
TOTAL	.00	.00	.00	.00	1.17	811.07	156.9	47.96	11.59	24.78	184.54	796.2
MEAN	.000	.000	.000	.000	.042	26.2	5.23	1.55	.39	.80	5.95	26.5
MAX	.00	.00	.00	.00	.25	200	9.8	5.1	4.2	17	40	110
MIN	.00	.00	.00	.00	.00	.10	2.1	.24	.00	.00	.00	3.3
AC-FT	.00	.00	.00	.00	2.3	1610	311	95	23	49	366	1580

CAL YR 1976 TOTAL 1497.41 MEAN 4.09 MAX 70 MIN .00 AC-FT 2970

WTR YR 1977 TOTAL 2034.21 MEAN 5.57 MAX 200 MIN .00 AC-FT 4030

06478390 WOLF CREEK NEAR CLAYTON, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	148	1.9	4.1	1.9	.38	1.5	97	31	20	30	12	31
2	58	2.0	3.6	1.8	.37	1.4	108	26	16	25	18	23
3	29	1.9	3.3	1.8	.39	1.4	151	23	14	20	29	17
4	16	1.9	3.2	1.8	.42	1.3	104	20	12	16	27	13
5	9.9	1.8	3.9	1.7	.46	1.3	170	19	11	15	22	11
6	7.2	1.9	3.6	1.7	.50	1.3	259	17	11	19	19	9.1
7	16	1.9	3.0	1.7	.58	1.3	201	21	10	43	15	7.8
8	17	3.2	2.4	1.6	.63	1.4	176	32	9.4	125	12	6.4
9	17	7.0	2.2	1.6	.70	1.5	136	37	9.2	81	9.4	5.2
10	16	10	2.2	1.5	.78	1.6	128	30	8.8	59	7.6	4.4
11	13	6.6	2.5	1.5	.83	1.8	97	23	8.4	44	6.1	4.4
12	10	12	2.9	1.4	.86	2.3	71	25	8.0	34	5.1	8.2
13	8.4	8.7	3.2	1.3	.89	10	55	29	7.3	27	4.2	54
14	6.9	7.3	3.9	1.3	.90	25	47	26	8.2	22	3.9	29
15	6.2	9.3	4.5	1.2	.92	120	44	21	9.9	17	6.2	20
16	5.0	18	4.6	1.2	.94	190	39	18	7.7	14	5.6	15
17	4.1	21	4.5	1.1	.96	180	43	15	7.0	12	5.6	12
18	3.4	27	4.4	1.1	.98	420	102	14	6.2	10	6.7	15
19	3.0	24	4.1	1.0	1.0	1000	180	14	5.0	10	5.3	24
20	2.4	25	3.7	.99	1.1	1100	105	14	4.1	9.3	4.1	27
21	2.1	17	3.3	.94	1.2	890	81	13	3.6	17	3.6	20
22	1.8	10	3.0	.70	1.4	897	75	12	26	54	3.7	16
23	1.9	6.7	2.8	.64	1.7	722	70	12	7.4	155	3.6	12
24	2.0	3.5	2.6	.64	1.8	565	71	12	4.4	116	3.3	9.7
25	1.8	2.8	2.4	.64	1.9	481	68	13	8.2	66	2.9	7.9
26	1.7	2.9	2.3	.64	1.8	376	56	12	135	47	35	6.4
27	1.5	3.1	2.2	.64	1.7	283	50	14	84	34	109	5.6
28	1.4	3.4	2.1	.52	1.6	216	46	15	72	26	71	5.0
29	1.4	3.9	2.0	.42	---	163	41	17	53	22	69	4.1
30	1.6	4.3	2.0	.40	---	142	36	31	40	17	59	3.6
31	2.1	---	1.9	.39	---	121	---	24	---	14	42	---
TOTAL	415.8	250.0	96.4	35.76	27.69	7919.1	2907	630	626.8	1200.3	625.9	426.8
MEAN	13.4	8.33	3.11	1.15	.99	255	96.9	20.3	20.9	38.7	20.2	14.2
MAX	148	27	4.6	1.9	1.9	1100	259	37	135	155	109	54
MIN	1.4	1.8	1.9	.39	.37	1.3	36	12	3.6	9.3	2.9	3.6
AC-FT	825	496	191	71	55	15710	5770	1250	1240	2380	1240	847

CAL YR 1977 TOTAL 2796.41 MEAN 7.66 MAX 200 MIN .00 AC-FT 5550
WTR YR 1978 TOTAL 15161.55 MEAN 41.5 MAX 1100 MIN .37 AC-FT 30070

06478500 JAMES RIVER NEAR SCOTLAND, SD

LOCATION.--Lat 43°11'09", long 97°38'07", in SW¼SW¼ sec.30, T.97 N., R.57 W., Hutchinson County, Hydrologic Unit 10160011, on right bank 5.0 ft (2 m) downstream from highway bridge, 0.3 mi (0.5 km) upstream from Dawson Creek and 5.2 mi (8.4 km) northeast of Scotland.

DRAINAGE AREA.--21,550 mi² (55,810 km²), approximately. of which about 4,790 mi² (12,400 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1928 to current year. Monthly discharge only for some periods, published in WSP 1309.

REVISED RECORDS.--WSP 786: Drainage area. WSP 956: 1937-38. WSP 1279: 1932, 1948.

GAGE.--Water-stage recorder and rock and earth control. Datum of gage is 1,168.51 ft (356.162 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 28, 1972, at site 0.25 mi (0.4 km) downstream at present datum.

REMARKS.--Records good. Flow regulated by Arrowwood and Jim Lakes, and Jamestown Reservoir, combined capacity, 246,000 acre-ft (303 hm³), the largest of which is Jamestown Reservoir, capacity, 229,470 acre-ft (283 hm³), 527 mi (848 km) upstream since May 1953. Occasional backwater caused by Dawson Creek; reverse flow occurred for part of May 15, 1961, from information by local residents.

AVERAGE DISCHARGE.--50 years, 378 ft³/s (10.70 m³/s), 273,900 acre-ft/yr (338 hm³/yr); median of yearly mean discharges, 190 ft³/s (5.38 m³/s), 138,000 acre-ft/yr (170 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,200 ft³/s (430 m³/s) Apr. 3, 1962, gage height, 18.74 ft (5.712 m); no flow for many days in some years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,050 ft³/s (171 m³/s) Apr. 10, gage height, 15.94 ft (4.859 m); minimum daily, 12 ft³/s (0.34 m³/s) Jan. 26, 27.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	47	29	53	22	19	22	4050	2710	1480	447	660	370
2	116	38	49	21	19	21	4110	2650	1480	392	657	331
3	98	45	47	21	18	20	4060	2600	1450	349	664	297
4	69	42	46	21	18	20	4220	2550	1410	308	664	242
5	55	39	42	21	18	18	4440	2500	1410	298	641	224
6	48	38	39	20	18	18	5100	2440	1420	314	629	196
7	50	35	37	20	18	18	5510	2420	1410	379	610	179
8	51	40	37	20	18	18	5800	2410	1400	578	593	162
9	53	67	36	19	19	16	5920	2380	1350	689	581	151
10	52	111	33	18	20	16	5990	2350	1260	635	574	143
11	49	90	31	17	21	16	5840	2320	1110	575	565	127
12	47	64	30	16	20	16	5520	2290	940	525	558	130
13	41	48	31	16	18	18	5200	2250	794	494	540	144
14	36	50	32	16	17	21	4810	2210	663	456	523	167
15	33	63	32	16	17	26	4530	2160	619	429	542	144
16	31	79	34	16	18	126	4290	2100	612	398	546	134
17	31	92	35	16	18	994	4120	2020	594	367	514	128
18	30	105	35	15	18	1620	3970	1950	569	363	481	154
19	27	113	34	15	18	3150	3840	1870	527	366	461	148
20	26	115	33	15	18	4120	3750	1780	482	380	439	166
21	26	136	30	14	20	4350	3660	1700	470	437	410	203
22	24	118	28	15	20	4840	3540	1620	461	765	386	164
23	23	83	28	16	18	4590	3420	1540	472	1140	371	134
24	25	95	29	18	18	4400	3320	1470	429	1240	363	124
25	25	85	28	13	18	4340	3190	1400	422	1060	330	124
26	25	72	27	12	20	4210	3090	1320	565	909	326	119
27	25	66	24	12	22	4140	2970	1250	794	807	449	106
28	24	60	23	22	22	4070	2890	1180	777	734	612	100
29	23	52	22	22	---	4000	2810	1080	662	690	614	94
30	24	53	22	20	---	4070	2760	1240	525	673	576	92
31	27	---	23	20	---	4080	---	1430	---	660	470	---
TOTAL	1261	2123	1030	545	526	57384	126720	61190	26557	17857	16349	4997
MEAN	40.7	70.8	33.2	17.6	18.8	1851	4224	1974	885	576	527	167
MAX	116	136	53	22	22	4840	5990	2710	1480	1240	664	370
MIN	23	29	22	12	17	16	2760	1080	422	298	326	92
AC-FT	2500	4210	2040	1080	1040	113800	251300	121400	52680	35420	32430	9910

CAL YR 1977 TOTAL 46366.3 MEAN 127 MAX 2380 MIN 1.9 AC-FT 91970
WTR YR 1978 TOTAL 316539.0 MEAN 867 MAX 5990 MIN 12 AC-FT 627900

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued
(National stream-quality accounting network station)
(National pesticide water-monitoring network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1956-64, 1967-73, 1975 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: January 1953 to September 1969, October 1974 to current year.

REMARKS.--Prior to October 1969, continuous temperature thermograph at station.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,660 micromhos Jan. 9, 1977; minimum daily, 300 micromhos Mar. 19, 1977.
WATER TEMPERATURES: Maximum, 32.0°C Aug. 1, 2, 1957; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,600 micromhos Mar. 7; minimum daily, 345 micromhos Mar. 14, 15.
WATER TEMPERATURES: Maximum daily, 27.0°C June 29, 30, Aug. 24, 25; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	TURBIDITY (JTU) (00070)	TURBIDITY (NTU) (00076)	OXYGEN, DISSOLVED (MG/L) (00300)	COLIFORM, FECAL, 0.7 UM-MF (COLS./100 ML) (31625)	STREPTOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARDNESS (MG/L AS CACO3) (00900)
OCT											
27...	1115	25	1400	7.8	11.0	15	--	7.7	30	320	630
NOV											
29...	1130	51	2700	7.7	.5	7	--	14.6	20	100	800
DEC											
29...	1250	22	2250	7.5	.0	3	--	13.8	5	20	1000
JAN											
30...	1315	19	1700	7.3	.0	3	--	--	4	5	1200
FEB											
27...	1340	22	2350	7.3	.0	3	--	2.5	K6	K3	1200
APR											
06...	1130	4930	430	7.3	8.5	20	--	10.0	--	--	130
27...	1230	2980	570	8.1	11.0	35	--	12.9	K13	60	210
MAY											
30...	1245	1230	760	7.7	21.0	--	28	6.3	20	30	270
JUN											
21...	1345	475	720	7.9	23.0	--	27	8.8	50	35	310
JUL											
11...	1330	565	860	7.8	23.0	--	36	8.7	--	--	330
AUG											
30...	0900	572	820	7.5	23.0	--	30	6.5	150	140	310
SEP											
25...	1345	125	1080	7.9	18.0	--	17	8.0	70	80	450

DATE	HARDNESS, NONCARBONATE (MG/L CACO3) (00902)	CALCIUM DISSOLVED (MG/L AS CA) (00915)	MAGNESIUM, DISSOLVED (MG/L AS MG) (00925)	SODIUM, DISSOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM ADSORPTION RATIO (00931)	POTASSIUM, DISSOLVED (MG/L AS K) (00935)	BICARBONATE (MG/L AS HCO3) (00440)	CARBONATE (MG/L AS CO3) (00445)	ALKALINITY (MG/L AS CACO3) (00410)
OCT										
27...	430	150	63	69	19	1.2	17	250	0	210
NOV										
29...	540	190	80	93	20	1.4	19	320	0	260
DEC										
29...	710	250	100	130	21	1.8	20	350	0	287
JAN										
30...	780	290	110	150	21	1.9	20	480	0	390
FEB										
27...	760	290	110	160	22	2.0	19	510	0	420
APR										
06...	24	34	11	28	29	1.1	16	130	0	110
27...	90	54	19	32	23	1.0	13	150	0	120
MAY										
30...	79	65	26	54	29	1.4	13	--	--	190
JUN										
21...	95	71	31	63	30	1.6	14	--	--	210
JUL										
11...	130	79	32	57	26	1.4	16	--	--	200
AUG										
30...	110	75	30	52	25	1.3	17	--	--	200
SEP										
25...	190	110	42	74	26	1.5	17	--	--	260

K Non-ideal colony count.

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DISSOLVED (MG/L AS SO4) (00945)	CHLORIDE, DISSOLVED (MG/L AS CL) (00940)	FLUORIDE, DISSOLVED (MG/L AS F) (00950)	SILICA, DISSOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DISSOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTITUENTS, DISSOLVED (MG/L) (70301)	SOLIDS, DISSOLVED (TONS PER AC-FT) (70303)	SOLIDS, DISSOLVED (TONS PER DAY) (70302)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT 27...	540	28	.4	15	1050	1010	1.43	70.9	.02	--
NOV 29...	630	49	.5	1.9	1330	1220	1.81	183	.51	--
DEC 29...	960	74	.8	9.0	1780	1720	2.42	106	.18	--
JAN 30...	950	69	.8	24	2010	1850	2.73	103	.38	2.3
FEB 27...	910	85	.7	26	2010	1850	2.73	119	.35	3.1
APR 06...	75	13	.1	9.7	256	251	.35	3410	.54	2.1
27...	120	17	.1	6.0	356	335	.48	2860	.01	1.7
MAY 30...	150	29	.2	11	482	462	.66	1600	.08	--
JUN 21...	170	37	.2	16	541	528	.74	694	.01	1.3
JUL 11...	200	41	.2	5.8	560	552	.76	854	.38	1.9
AUG 30...	190	25	.2	16	567	525	.77	876	.24	1.9
SEP 25...	290	34	.2	12	727	736	.99	245	.01	1.6

DATE	NITROGEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITROGEN, NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NITRATE TOTAL (MG/L AS N) (00620)	NITROGEN, TOTAL (MG/L AS N) (00600)	NITROGEN, TOTAL (MG/L AS NO3) (71887)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)
OCT 27...	--	.16	.56	--	--	--	--	--	.04	.14
NOV 29...	--	.09	.76	--	--	--	--	--	.35	.37
DEC 29...	--	.25	--	--	--	--	--	--	.19	.24
JAN 30...	.70	1.6	2.3	.00	--	--	2.7	12	.64	.73
FEB 27...	.90	2.2	3.2	.00	--	--	3.5	15	.89	.97
APR 06...	1.9	.19	1.7	.40	--	--	2.6	12	.36	.56
27...	1.6	.06	.90	.80	--	--	1.7	7.6	.24	.50
MAY 30...	--	.04	--	--	--	--	--	--	.29	.52
JUN 21...	1.3	.01	.63	.67	--	--	1.3	5.8	.11	.30
JUL 11...	1.9	.01	.76	1.1	--	--	2.3	10	.15	.36
AUG 30...	1.8	.09	.93	.97	--	--	2.1	9.5	.14	.33
SEP 25...	1.6	.01	.82	.78	--	--	1.6	7.1	.05	.24

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	CARBON, ORGANIC DIS-SOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUS-PENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTO-PLANK-TON, TOTAL (CELLS PER ML) (60050)	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 27...	1115	--	--	6.7	--	--	--	135	9.1	84
NOV 29...	1130	2.7	1.3	7.7	6000	--	--	196	27	82
DEC 29...	1250	--	--	6.9	--	--	--	--	--	--
FEB 27...	1340	--	--	8.1	--	--	--	239	14	88
APR 06...	1130	--	--	14	--	--	--	67	892	82
MAY 30...	1245	--	--	11	170000	--	--	108	362	92
JUN 21...	1345	--	--	11	96000	--	--	132	169	93
AUG 30...	0900	--	--	15	--	--	--	119	184	94
SEP 25...	1345	--	--	14	--	--	--	117	39	95

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUS-PENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOV-ERABLE (UG/L AS CD) (01027)	CADMIUM SUS-PENDED RECOV-ERABLE (UG/L AS CD) (01026)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, TOTAL RECOV-ERABLE (UG/L AS CR) (01034)	CHRO-MIUM, SUS-PENDED RECOV. (UG/L AS CR) (01031)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOV-ERABLE (UG/L AS CO) (01037)
NOV 29...	1130	5	0	5	0	0	0	0	0	0	0
JAN 30...	1315	5	1	4	1	1	0	10	10	0	0
APR 27...	1230	5	3	2	0	0	1	0	0	0	1
JUL 11...	1330	5	1	4	46	45	1	10	10	0	4

DATE	COBALT, SUS-PENDED RECOV-ERABLE (UG/L AS CO) (01036)	COBALT, DIS-SOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	COPPER, SUS-PENDED RECOV-ERABLE (UG/L AS CU) (01041)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	LEAD, SUS-PENDED RECOV-ERABLE (UG/L AS PB) (01050)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)
NOV 29...	0	0	4	3	1	240	40	3	1	2	360
JAN 30...	0	0	4	4	0	220	20	1	0	2	2600
APR 27...	1	0	5	2	3	2900	50	10	6	4	570
JUL 11...	1	3	7	3	4	1600	40	180	170	8	640

DATE	MANGA-NESE, SUS-PENDED RECOV. (UG/L AS MN) (01054)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY SUS-PENDED RECOV-ERABLE (UG/L AS HG) (71895)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	SELE-NIUM, SUS-PENDED TOTAL (UG/L AS SE) (01146)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)	ZINC, SUS-PENDED RECOV-ERABLE (UG/L AS ZN) (01091)	ZINC, DIS-SOLVED (UG/L AS ZN) (01090)
NOV 29...	160	200	.1	.1	.0	2	1	1	20	10	10
JAN 30...	100	2500	.0	.0	.0	1	0	1	30	20	10
APR 27...	410	160	.0	.0	.0	0	0	0	20	0	20
JUL 11...	510	130	.0	.0	.1	0	0	0	20	10	10

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
NOV 28...	1130	ND	--	ND	--	ND	--	ND	--	ND
JAN 30...	1315	ND	--	ND	--	ND	--	ND	--	ND
APR 27...	1230	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)
NOV 28...	--	ND	--	ND	--	ND	--	ND	--	ND
JAN 30...	--	ND	--	ND	--	ND	--	ND	--	ND
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)
NOV 28...	--	ND	--	ND	--	ND	--	ND	--	ND
JAN 30...	--	ND	--	ND	--	ND	--	ND	--	ND
APR 27...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COULSON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)
NOV 28...	--	ND	--	ND	--	ND	--	ND	--	ND
JAN 30...	--	ND	--	ND	--	--	--	ND	--	ND
APR 27...	ND	ND	ND	ND	ND	--	--	ND	ND	ND

DATE	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
NOV 28...	--	ND	--	ND	--	ND	--	ND	--
JAN 30...	--	--	--	ND	--	ND	--	ND	--
APR 27...	ND	--	--	--	--	--	--	--	--

ND Not detected.

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
AUG						
29...	1100	625	23.0	7.0	--	--
29...	1300	625	22.0	7.9	--	--
29...	1500	618	23.0	8.6	--	--
29...	1700	618	24.0	8.6	--	--
29...	1900	618	24.0	8.6	--	--
29...	2100	610	24.0	8.2	--	--
29...	2300	610	23.0	8.2	--	--
30...	0100	610	23.0	7.8	--	--
30...	0300	610	22.0	6.9	--	--
30...	0500	602	22.0	6.9	--	--
30...	0700	595	22.0	6.5	--	--
30...	1000	558	23.0	6.6	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	860	1450	1730	2220	2200	2500	400	530	800	830	900	1020
2	1100	1470	1700	2220	2390	2500	390	540	800	830	910	1020
3	1430	1510	1690	2220	2410	2500	400	540	800	930	910	1000
4	1490	1520	1670	2360	2450	2500	390	540	800	910	900	1020
5	1250	1550	1650	2350	2440	2500	440	540	800	910	900	1000
6	940	1590	1690	2410	2450	2560	435	570	810	910	910	1060
7	1020	1600	1700	2400	2450	2600	440	570	810	910	930	1060
8	1030	1450	1730	2500	2440	2590	380	580	800	910	920	1050
9	1140	1460	1850	2450	2440	2590	375	570	800	730	870	1060
10	1300	1460	1850	2500	2440	2100	375	690	790	730	870	1070
11	1300	1480	2010	2510	2430	2090	365	700	740	730	870	1100
12	1290	1410	2040	2500	2450	2090	370	700	750	730	870	1130
13	1220	1440	2060	2510	2320	350	365	700	760	900	870	1100
14	1220	1500	1800	2500	2440	345	375	750	750	900	870	1100
15	1210	1480	1940	2440	2450	345	410	750	750	900	870	1100
16	1220	1460	1450	2410	2400	380	410	750	880	900	870	1060
17	1270	1490	2000	2460	2400	520	400	750	880	910	800	1060
18	1290	1550	2020	2420	2400	515	410	750	880	920	800	1070
19	1280	1540	2150	2500	2400	510	550	770	880	920	810	1070
20	1290	1650	2130	2410	2400	510	535	760	880	920	810	1100
21	1320	1680	2140	2440	2410	380	540	770	880	920	870	1100
22	1320	1720	2110	2440	2400	370	535	760	860	740	880	1110
23	1320	1720	2160	2490	2390	360	550	760	880	750	860	1200
24	1340	1710	2220	2460	2390	510	580	750	860	740	860	1220
25	1330	1700	2100	2490	2410	525	570	750	1060	740	880	1200
26	1330	1700	2100	2500	2420	530	575	750	1060	820	890	1220
27	1340	1680	2100	2500	2460	510	580	760	1060	810	900	1210
28	1340	1680	1950	2510	2460	435	580	850	1060	810	900	1240
29	1350	1730	1860	2510	---	430	575	860	890	810	870	1270
30	1360	1560	1960	2510	---	430	600	750	880	820	880	1230
31	1360	---	2200	2500	---	430	---	860	---	820	850	---
MEAN	1250	1560	1930	2440	2410	1210	463	699	855	842	874	1110

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15.0	11.0	3.0	.0	.0	2.0	10.0	11.0	18.0	24.0	23.0	23.0
2	12.0	9.0	2.0	.0	.0	2.0	9.0	12.0	18.0	24.0	22.0	23.0
3	12.0	9.0	1.0	.0	.0	2.0	9.0	12.0	19.0	24.0	22.0	24.0
4	13.0	8.0	3.0	.0	.0	2.0	9.0	13.0	19.0	24.0	21.0	25.0
5	12.0	10.0	2.0	1.0	.0	2.0	9.0	13.0	19.0	25.0	22.0	25.0
6	12.0	10.0	2.0	1.0	.0	2.0	9.0	12.0	19.0	24.0	23.0	24.0
7	11.0	9.0	2.0	1.0	.0	2.0	10.0	11.0	19.0	23.0	23.0	24.0
8	10.0	8.0	2.0	.0	.0	2.0	10.0	11.0	20.0	22.0	24.0	24.0
9	9.0	---	1.0	.0	.0	3.0	10.0	13.0	20.0	22.0	24.0	24.0
10	9.0	---	.0	.0	.0	4.0	10.0	14.0	20.0	21.0	25.0	23.0
11	9.0	3.0	1.0	.0	.0	4.0	10.0	15.0	20.0	21.0	26.0	23.0
12	7.0	4.0	1.0	.0	.0	4.0	10.0	15.0	20.0	22.0	26.0	22.0
13	8.0	3.0	2.0	.0	.0	4.0	9.0	15.0	21.0	23.0	26.0	21.0
14	9.0	4.0	2.0	.0	.0	4.0	9.0	16.0	21.0	24.0	26.0	19.0
15	8.0	5.0	3.0	.0	.0	4.0	9.0	16.0	22.0	24.0	26.0	19.0
16	8.0	4.0	3.0	.0	.0	4.0	9.0	16.0	23.0	24.0	25.0	19.0
17	9.0	3.0	3.0	.0	.0	4.0	8.0	17.0	23.0	24.0	24.0	18.0
18	10.0	4.0	3.0	.0	.0	4.0	6.0	17.0	23.0	24.0	22.0	18.0
19	11.0	5.0	3.0	.0	.0	4.0	6.0	17.0	23.0	25.0	20.0	17.0
20	12.0	3.0	---	.0	1.0	4.0	6.0	18.0	23.0	25.0	20.0	16.0
21	11.0	.0	---	.0	1.0	4.0	6.0	18.0	23.0	25.0	22.0	15.0
22	11.0	1.0	1.0	.0	1.0	5.0	7.0	18.0	23.0	25.0	24.0	15.0
23	10.0	1.0	1.0	.0	1.0	5.0	7.0	18.0	23.0	24.0	26.0	15.0
24	10.0	.0	.0	.0	2.0	6.0	8.0	20.0	24.0	24.0	27.0	16.0
25	10.0	.0	.0	.0	2.0	7.0	8.0	21.0	24.0	24.0	27.0	16.0
26	10.0	1.0	.0	.0	2.0	7.0	9.0	22.0	24.0	24.0	26.0	16.0
27	10.0	1.0	.0	.0	2.0	8.0	9.0	22.0	24.0	24.0	24.0	16.0
28	10.0	1.0	.0	.0	2.0	9.0	10.0	21.0	26.0	24.0	24.0	15.0
29	11.0	2.0	.0	.0	---	9.0	12.0	19.0	27.0	24.0	23.0	15.0
30	13.0	3.0	1.0	.0	---	10.0	11.0	18.0	27.0	23.0	23.0	15.0
31	12.0	---	---	.0	---	10.0	---	18.0	---	23.0	23.0	---
MEAN	10.5	4.5	1.5	.0	.5	4.5	9.0	16.0	22.0	23.5	24.0	19.5

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 19,77	NOV 29,77	MAY 30,78	JUN 21,78	JUL 11,78
TIME	1145	1130	1245	1345	1330
TOTAL CELLS/ML	22000	6000	170000	96000	28000
DIVERSITY: DIVISION	1.4	1.6	1.1	1.4	1.4
.CLASS	1.5	2.1	1.1	1.4	1.4
..ORDER	1.7	2.4	1.2	1.5	2.3
...FAMILY	2.5	2.8	2.1	2.1	2.6
....GENUS	3.2	3.3	2.8	3.0	3.2

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...CHARACIACEAE										
....SCHROEDERIA	890	4	37	1	1300	1	--	-	--	-
...COELASTRACEAE										
....COELASTRUM	1300	6	--	-	6700	4	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	--	-	--	-	*	0	790	1	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	1600	7	110	2	830	1	1600	2	510	2
....CHLORELLA	--	-	--	-	1300	1	--	-	--	-
....CHODATELLA	160	1	--	-	--	-	*	0	*	0
....DICTYOSPHAERIUM	--	-	110	2	--	-	27000#	28	820	3
....KIRCHNERIELLA	320	1	150	2	9200	6	530	1	--	-
....OOCYSTIS	--	-	150	2	39000#	24	--	-	1000	4
....SELENASTRUM	--	-	75	1	--	-	--	-	--	-
....TETRAEDRON	--	-	--	-	*	0	530	1	--	-
....TREUBARIA	--	-	--	-	--	-	*	0	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	--	-	--	-	--	-	--	-	820	3
....CRUCIGENIA	1300	6	150	2	35000#	21	5300	5	4000	14
....SCENEDESMUS	5200#	24	450	7	13000	8	12000	13	4300#	15
....TETRASTRUM	970	4	--	-	5000	3	--	-	--	-
..ULOTRICHALES										
...ULOTRICHACEAE										
....ULOTHRIX	--	-	--	-	--	-	--	-	410	1
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CARTERIA	480	2	--	-	--	-	--	-	--	-
....CHLAMYDOMONAS	400	2	150	2	1700	1	530	1	--	-
..ZYGNEMATALES										
...DESMIDIACEAE										
....CLOSTERIUM	--	-	--	-	*	0	--	-	--	-
...ZYGNEMATACEAE										
....SPIROGYRA	--	-	--	-	--	-	--	-	4500#	16
..CHLOROCOCCALES										
...OOCYSTACEAE										
....GLOEOACTINIUM	--	-	--	-	--	-	15000#	16	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	320	1	--	-	2900	2	8900	9	1300	5
....MELOSIRA	--	-	--	-	--	-	2100	2	210	1
..PENNALES										
...ACHNANTHACEAE										
....COCCONEIS	--	-	--	-	*	0	--	-	--	-
...CYMBELLACEAE										
....AMPHORA	--	-	--	-	--	-	--	-	*	0
...NAVICULACEAE										
....GYROSIGMA	*	0	--	-	--	-	--	-	--	-
....NAVICULA	*	0	37	1	--	-	*	0	--	-
...NITZSCHIACEAE										
....NITZSCHIA	*	0	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE										
..HETEROCOCCALES										
...CENTRITRACTACEAE										
....CENTRITRACTUS	--	-	--	-	--	-	*	0	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06478500 JAMES RIVER NEAR SCOTLAND, SD--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 19,77	NOV 29,77	MAY 30,78	JUN 21,78	JUL 11,78
TIME	1145	1130	1245	1345	1330
TOTAL CELLS/ML	22000	6000	170000	96000	28000
DIVERSITY: DIVISION	1.4	1.6	1.1	1.4	1.4
.CLASS	1.5	2.1	1.1	1.4	1.4
..ORDER	1.7	2.4	1.2	1.5	2.3
...FAMILY	2.5	2.8	2.1	2.1	2.6
....GENUS	3.2	3.3	2.8	3.0	3.2

ORGANISM	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT	CELLS /ML	PER-CENT
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....ANACYSTIS	6800#	31	150	2	45000#	28	17000#	17	5800#	21
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	--	-	3400	12
....OSCILLATORIA	--	-	1100#	19	--	-	--	-	--	-
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOCHRYSIDACEAE										
....CHROOMONAS	400	2	820	14	--	-	--	-	--	-
...CRYPTOMONODACEAE										
....CRYPTOMONAS	--	-	640	11	--	-	530	1	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	560	3	150	2	--	-	1600	2	310	1
....PHACUS	320	1	--	-	*	0	--	-	--	-
....TRACHELOMONAS	480	2	1600#	27	1300	1	1100	1	620	2
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...GLENODINIACEAE										
....GLENODINIUM	--	-	--	-	--	-	*	0	--	-
...PERIDINIACEAE										
....PERIDINIUM	--	-	110	2	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06478540 LITTLE VERMILLION RIVER NEAR SALEM, SD
(Hydrologic bench-mark station)

LOCATION.--Lat 43°47'39", long 97°22'02", in SW¼ sec.19, T.104 N., R.54 W., McCook County, Hydrologic Unit 10170102, on right wingwall at downstream end of culvert on county highway, 2.0 mi (3.2 km) upstream from small left-bank tributary and 5.2 mi (8.4 km) northeast of Salem.

DRAINAGE AREA.--51.0 mi² (132 km²), approximately.

PERIOD OF RECORD.--October 1966 to current year.

GAGE.--Water-stage recorder and concrete dam.

REMARKS.--Records good. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--12 years, 2.15 ft³/s (0.061 m³/s), 1,560 acre-ft/yr (1.92 hm³/yr); median of yearly mean discharges, 1.3 ft³/s (0.04 m³/s), 940 acre-ft/yr (1.2 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 676 ft³/s (19.1 m³/s) Mar. 21, 1978, gage height, 7.79 ft (2.374 m); maximum gage height, 8.53 ft (2.600 m) Apr. 5, 1969 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 10 ft³/s (0.28 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 21	0400	*676	19.1	*7.79	2.374
Apr. 5	1400	100	2.83	5.75	1.753
Apr. 19	1100	32	0.91	4.83	1.472
May 9	1200	22	0.62	4.56	1.390
May 31	1800	55	1.56	5.01	1.527

No flow for many days.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.00	.00	.00	.00	.00	.00	3.8	6.6	51	.00	.00	.00
2	.00	.00	.00	.00	.00	.00	11	4.1	43	.00	.00	.00
3	.00	.00	.00	.00	.00	.00	14	3.4	33	.00	.00	.00
4	.00	.00	.00	.00	.00	.00	79	2.6	23	.00	.00	.00
5	.00	.00	.00	.00	.00	.00	93	2.1	12	.00	.00	.00
6	.00	.00	.00	.00	.00	.00	73	1.5	4.4	.00	.00	.00
7	.00	.00	.00	.00	.00	.00	48	2.8	1.8	.09	.00	.00
8	.00	.00	.00	.00	.00	.00	34	15	.75	.10	.00	.00
9	.00	.00	.00	.00	.00	.00	25	21	.40	.11	.00	.00
10	.00	.00	.00	.00	.00	.00	18	20	.20	.03	.00	.00
11	.00	.00	.00	.00	.00	.00	12	15	.14	.00	.00	.00
12	.00	.00	.00	.00	.00	.00	4.8	12	.09	.00	.00	.00
13	.00	.00	.00	.00	.00	.00	2.6	12	.06	.00	.00	.00
14	.00	.00	.00	.00	.00	1.0	1.3	6.0	.04	.00	.00	.00
15	.00	.00	.00	.00	.00	5.0	.83	3.1	.01	.00	.00	.00
16	.00	.00	.00	.00	.00	10	.53	1.8	.00	.00	.00	.00
17	.00	.00	.00	.00	.00	30	2.9	1.1	.00	.00	.00	.00
18	.00	.00	.00	.00	.00	40	24	.46	.00	.00	.00	.00
19	.00	.00	.00	.00	.00	50	31	.28	.00	.00	.00	.00
20	.00	.00	.00	.00	.00	370	27	.20	.00	.00	.00	.00
21	.00	.00	.00	.00	.00	480	21	.13	.00	.03	.00	.00
22	.00	.00	.00	.00	.00	243	15	.09	.00	3.3	.00	.00
23	.00	.00	.00	.00	.00	177	17	.08	1.0	1.8	.00	.00
24	.00	.00	.00	.00	.00	126	19	.06	.83	.24	.00	.00
25	.00	.00	.00	.00	.00	74	18	.07	.91	.09	.00	.00
26	.00	.00	.00	.00	.00	53	15	.05	.35	.01	.00	.00
27	.00	.00	.00	.00	.00	41	14	.12	.18	.00	.00	.00
28	.00	.00	.00	.00	.00	33	12	1.4	.10	.00	.00	.00
29	.00	.00	.00	.00	---	26	10	19	.05	.00	.00	.00
30	.00	.00	.00	.00	---	17	8.7	43	.00	.00	.00	.00
31	.00	---	.00	.00	---	9.8	---	53	---	.00	.00	---
TOTAL	.00	.00	.00	.00	.00	1785.80	655.46	248.04	173.31	5.80	.00	.00
MEAN	.000	.000	.000	.000	.000	57.6	21.8	8.00	5.78	.19	.000	.000
MAX	.00	.00	.00	.00	.00	480	93	53	51	3.3	.00	.00
MIN	.00	.00	.00	.00	.00	.00	.53	.05	.00	.00	.00	.00
AC-FT	.00	.00	.00	.00	.00	3540	1300	492	344	12	.00	.00

CAL YR 1977 TOTAL 547.59 MEAN 1.50 MAX 199 MIN .00 AC-FT 1090
WTR YR 1978 TOTAL 2868.41 MEAN 7.86 MAX 480 MIN .00 AC-FT 5690

06478690 WEST FORK VERMILLION RIVER NEAR PARKER, SD

LOCATION.--Lat 43°24'55", long 97°12'18", in NE¼NE¼ sec.10, T.99 N., R.54 W., Turner County, Hydrologic Unit 10170102, on left downstream wingwall of bridge, 3.7 mi (6.0 km) northwest of Parker and 13.9 mi (22.4 km) upstream from confluence with East Fork Vermillion River.

DRAINAGE AREA.--370 mi^2 (958 km^2), approximately.

PERIOD OF RECORD.--August 1961 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,340 ft (408 m), from topographic map. Prior to Oct. 11, 1973, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--Records fair except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--17 years, 20.7 ft^3/s (0.586 m^3/s), 15,000 acre-ft/yr (18.5 hm^3/yr); median of yearly mean discharges, 8.6 ft^3/s (0.24 m^3/s), 6,200 acre-ft/yr (7.6 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,340 ft^3/s (123 m^3/s) Mar. 28, 1962, gage height, 12.33 ft (3.758 m); no flow for many days in most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 150 ft^3/s (4.25 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 19	2100	ice jam		*10.15	3.094	Apr. 24	2300	190	5.38	4.38	1.335
Mar. 22	1930	*1510	42.8	9.47	2.886	June 26	1200	277	7.84	5.20	1.585
Apr. 3	1200	408	11.6	5.94	1.811	July 8	1430	158	4.47	4.06	1.237
Apr. 6	1400	308	8.72	5.31	1.618	July 23	2200	235	6.66	4.76	1.451
Apr. 19	1330	487	13.8	6.48	1.975	Aug. 27	0130	256	7.25	4.80	1.463

Minimum daily discharge, 0.05 ft^3/s (0.001 m^3/s) Feb. 18.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	92	13	5.0	.83	.26	.10	133	32	80	16	39	14
2	66	13	4.3	.88	.23	.09	165	29	49	14	20	12
3	28	13	3.7	.93	.20	.08	374	26	35	12	14	11
4	28	13	3.3	1.0	.17	.06	251	23	28	11	13	9.2
5	28	13	2.9	1.0	.14	.06	231	21	25	14	13	7.1
6	27	13	2.6	1.1	.12	.07	285	19	23	25	11	6.4
7	27	13	2.3	1.2	.11	.08	231	22	19	41	9.7	4.2
8	26	13	2.1	.85	.12	.08	146	30	17	128	8.8	2.9
9	25	15	1.9	.65	.13	.09	138	40	16	99	7.8	2.3
10	21	20	1.7	.50	.14	.10	170	42	15	56	7.6	2.3
11	19	17	1.9	.55	.15	.15	148	30	14	24	7.1	2.3
12	17	15	2.1	.60	.16	.30	101	25	13	16	5.6	2.3
13	16	17	2.3	.66	.14	.75	88	24	12	14	4.7	2.3
14	15	22	2.6	.63	.13	4.0	85	23	12	12	4.2	2.3
15	16	30	2.9	.60	.12	50	86	21	11	11	3.8	2.3
16	16	40	3.2	.57	.11	150	83	18	11	9.5	3.6	2.3
17	16	60	3.5	.55	.09	500	83	17	11	8.0	3.3	2.5
18	14	56	3.8	.52	.05	700	179	15	11	7.1	3.1	5.2
19	14	40	3.5	.50	.07	1100	444	14	12	5.9	3.1	13
20	13	26	3.2	.48	.08	1350	261	13	12	5.2	2.9	10
21	13	12	2.8	.44	.10	1330	135	13	13	10	2.7	7.6
22	12	7.5	2.5	.48	.10	1430	93	12	13	77	2.7	5.2
23	12	5.2	2.1	.56	.11	1260	99	12	37	201	2.5	3.8
24	12	3.0	1.8	.64	.11	904	166	12	19	187	2.5	3.1
25	12	1.6	1.5	.68	.12	641	169	11	84	103	2.3	2.5
26	12	1.8	1.4	.64	.11	473	117	11	226	45	107	2.5
27	12	2.3	1.2	.56	.10	376	66	11	102	23	175	2.2
28	13	2.9	1.1	.50	.10	376	44	11	57	16	70	2.2
29	13	3.5	.97	.42	---	303	38	24	31	13	30	2.2
30	13	4.5	.90	.36	---	216	35	69	19	13	23	2.2
31	13	---	.80	.30	---	162	---	104	---	13	18	---
TOTAL	661	506.3	75.87	20.18	3.57	11327.01	4644	774	1027	1229.7	621.0	149.4
MEAN	21.3	16.9	2.45	.65	.13	365	155	25.0	34.2	39.7	20.0	4.98
MAX	92	60	5.0	1.2	.26	1430	444	104	226	201	175	14
MIN	12	1.6	.80	.30	.05	.06	35	11	11	5.2	2.3	2.2
AC-FT	1310	1000	150	40	7.1	22470	9210	1540	2040	2440	1230	296

CAL YR 1977 TOTAL 3538.10 MEAN 9.69 MAX 293 MIN .00 AC-FT 7020
WTR YR 1978 TOTAL 21039.03 MEAN 57.6 MAX 1430 MIN .05 AC-FT 41730

06479000 VERMILLION RIVER NEAR WAKONDA, SD

LOCATION.--Lat 42°59'27", long 96°57'49", in SW¼NW¼ sec.2, T.94 N., R.52 W., Clay County, Hydrologic Unit 10170102, on left bank 40 ft (12 m) downstream from bridge on State Highway 19, 4.3 mi (6.9 km) downstream from Frog Creek, 7.4 mi (11.9 km) southeast of Wakonda, and 29.6 mi (47.6 km) upstream from mouth.

DRAINAGE AREA.--1,680 mi^2 (4,351 km^2), approximately.

PERIOD OF RECORD.--October 1945 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,150.9 ft (350.79 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 2, 1954, nonrecording gage and crest-stage gage at site 40 ft (12 m) upstream at same datum. Since Dec. 27, 1951, supplementary nonrecording gage on relief bridge.

REMARKS.--Records fair except those for winter periods, which are poor. At times during periods of high stage, part of flow leaves main channel through levee breaks and bypasses gage through overflow channel on left bank. Several observations of water temperature and specific conductance were made during the year. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--33 years, 110 ft^3/s (3.115 m^3/s), 79,700 acre-ft/yr (98.3 hm^3/yr); median of yearly mean discharges, 79 ft^3/s (2.24 m^3/s), 57,200 acre-ft/yr (71 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,880 ft^3/s (280 m^3/s) Apr. 8, 1969; maximum gage height, 17.17 ft (5.233 m) Apr. 6, 1969; no flow at times in 1951, 1956-59, 1975-77.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)	Date	Time	Discharge (ft^3/s)	(m^3/s)	Gage height (ft)	(m)
Mar. 22	0015	*2750	77.9	*16.44	5.011	July 23	2130	2460	69.7	15.66	4.773

Minimum daily discharge, 0.20 ft^3/s (0.006 m^3/s) Feb. 7.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.75	5.7	15	1.3	.33	.47	974	249	103	130	236	78
2	.70	4.9	13	1.2	.30	.45	856	225	138	98	210	75
3	.60	4.3	11	1.3	.27	.43	813	214	147	79	135	70
4	.50	3.9	9.0	1.4	.25	.42	780	200	128	68	148	65
5	3.8	4.3	8.0	1.5	.23	.40	835	180	107	64	151	56
6	29	5.1	7.0	1.6	.22	.43	814	165	96	418	129	39
7	24	5.7	6.0	1.7	.20	.49	669	145	86	611	112	37
8	18	8.7	5.2	1.4	.22	.56	647	135	80	528	100	37
9	17	10	4.6	1.0	.25	.64	665	140	74	370	91	37
10	14	12	4.0	.70	.28	.74	602	145	71	268	84	37
11	12	16	4.3	.78	.31	.80	534	150	68	283	76	37
12	13	12	4.8	.90	.36	.90	493	155	64	252	70	42
13	13	6.0	6.5	.80	.35	1.0	458	152	62	195	65	41
14	21	8.0	7.6	.70	.34	1.1	383	148	61	150	61	39
15	24	6.0	7.4	.60	.33	1.2	325	135	59	119	68	37
16	22	4.0	7.3	.54	.31	17	283	120	58	99	69	36
17	21	3.0	7.7	.47	.30	230	276	112	56	85	67	34
18	20	2.4	7.8	.45	.29	550	349	105	46	80	65	35
19	18	1.7	7.2	.44	.33	1250	528	96	26	79	60	33
20	15	1.2	6.5	.43	.40	1940	647	90	29	72	56	32
21	13	.88	5.6	.40	.46	2580	762	83	40	101	53	31
22	10	.65	5.0	.43	.56	2520	750	77	41	966	50	33
23	10	.45	4.5	.47	.60	2430	573	81	47	2310	48	65
24	11	.35	4.0	.52	.58	2440	471	78	81	2370	46	63
25	9.3	.70	3.4	.60	.55	2380	434	75	63	1800	45	40
26	7.4	1.4	2.9	.56	.53	2250	440	72	68	1430	48	36
27	5.7	2.8	2.5	.50	.51	1960	436	70	93	1060	74	35
28	4.6	5.0	2.3	.46	.49	1630	378	70	191	704	78	33
29	3.4	10	2.0	.42	---	1370	277	80	243	476	87	31
30	3.4	17	1.7	.39	---	1220	275	90	189	352	125	31
31	5.1	---	1.5	.35	---	1130	---	86	---	279	90	---
TOTAL	370.25	164.13	185.3	24.31	10.15	25907.03	16726	3923	2615	15896	2797	1295
MEAN	11.9	5.47	5.98	.78	.36	836	558	127	87.2	513	90.2	43.2
MAX	29	17	15	1.7	.60	2580	974	249	243	2370	236	78
MIN	.50	.35	1.5	.35	.20	.40	275	70	26	64	45	31
AC-FT	734	326	368	48	20	51390	33180	7780	5190	315[illegible]	5550	2570

CAL YR 1977 TOTAL 4345.92 MEAN 11.9 MAX 300 MIN .00 AC-FT 8620
WTR YR 1978 TOTAL 69913.17 MEAN 192 MAX 2580 MIN .20 AC-FT 138700

06479438 BIG SIOUX RIVER NEAR WATERTOWN, SD

LOCATION.--Lat 45°00'22", long 97°09'53", in NE¼NE¼NE¼ sec.16, T.118 N., R.52 W., Codington County, Hydrologic Unit 10170202, on left bank at downstream side of county highway bridge, 4.9 mi (7.9 km) downstream from Mahoney Creek, 6.5 mi (10.5 km) upstream from inlet-outlet to Lake Kampeska, and 7.5 mi (12.1 km) northwest of Watertown.

DRAINAGE AREA.--241 mi² (624 km²), approximately.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,725.81 ft (526.027 m) National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--6 years, 61.0 ft³/s (1.728 m³/s), 13,620 acre-ft/yr (16.8 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,720 ft³/s (105 m³/s) Mar. 30, 1978, gage height, 11.07 ft (3.374 m); no flow at times in 1974-78.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar 30	2400	*3720	105	*11.07	3.374
Apr. 5	2045	396	11.2	7.65	2.331
Aug. 27	1945	411	11.6	8.33	2.539

No flow Feb. 2-8.

REVISIONS.--The maximum discharges for some water years have been revised, as shown in the following table. They supersede figures published in the reports for 1973, 1974, 1976, and 1977.

Water year	Date	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
1973	Mar. 15, 1973	595	16.9	8.11	2.472
1974	Apr. 4, 1974	232	6.57	6.75	2.057
1976	Mar. 24, 1976	288	8.16	7.07	2.155
1977	June 16, 1977	938	26.6	8.77	2.673

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.0	4.0	8.6	1.1	.01	.04	2140	84	107	14	3.4	16
2	.77	4.9	8.8	1.0	.00	.04	829	74	77	18	5.3	14
3	.69	5.2	9.0	1.0	.00	.04	358	68	63	18	4.5	12
4	.65	4.5	8.5	1.1	.00	.03	319	61	52	18	3.8	10
5	.57	4.5	7.6	1.1	.00	.03	342	55	41	17	3.1	9.6
6	.48	4.5	6.5	1.2	.00	.05	364	51	33	16	2.7	8.8
7	1.3	4.5	5.5	1.0	.00	.10	387	52	28	40	2.7	7.9
8	2.6	5.5	4.7	.70	.00	.18	310	70	25	105	2.0	7.0
9	3.6	4.5	4.0	.30	.01	.24	233	133	23	88	1.6	5.6
10	4.5	4.0	3.5	.15	.02	.30	224	146	21	69	1.6	4.7
11	3.7	3.5	3.0	.17	.03	.40	214	108	19	58	1.1	4.7
12	4.0	5.0	2.5	.19	.03	.55	209	83	17	44	1.1	6.2
13	3.5	6.5	2.7	.20	.03	.75	244	69	16	32	1.1	6.0
14	3.5	8.0	2.9	.17	.03	1.0	186	60	16	24	.80	5.8
15	2.7	9.0	3.1	.13	.02	.90	145	52	16	19	.95	6.6
16	2.3	8.7	3.3	.10	.02	.80	123	45	16	16	1.1	6.5
17	1.6	8.5	3.5	.07	.02	.70	109	39	17	13	.95	6.0
18	1.2	8.2	3.0	.05	.02	.75	115	35	16	12	.80	7.4
19	1.3	8.0	2.3	.04	.03	.90	176	34	14	10	.80	6.8
20	1.4	7.8	1.5	.03	.03	1.2	199	33	13	8.8	.95	6.1
21	.71	7.6	1.6	.03	.04	1.6	163	31	10	8.1	.80	5.6
22	.67	7.4	1.7	.04	.04	2.1	147	28	10	8.1	.58	6.7
23	.50	7.2	1.8	.04	.05	3.5	164	25	9.5	7.7	.80	5.9
24	.43	7.0	2.0	.05	.06	4.5	252	23	8.7	7.2	.50	5.2
25	.36	6.8	1.7	.05	.06	6.0	262	23	8.2	6.3	.50	4.9
26	.33	7.0	1.3	.05	.06	18	201	22	8.5	5.6	1.6	4.9
27	.23	7.3	1.4	.04	.05	60	156	23	8.3	5.4	158	4.5
28	.30	7.6	1.5	.03	.05	400	129	26	7.8	4.3	190	4.7
29	.28	7.8	1.6	.02	---	2000	110	40	6.8	4.0	60	4.5
30	.64	8.2	1.5	.02	---	3100	96	78	7.0	3.6	28	4.9
31	2.2	---	1.3	.01	---	3450	---	132	---	3.5	19	---
TOTAL	48.01	193.2	111.9	10.18	.71	9054.70	8906	1803	714.8	703.6	500.13	209.5
MEAN	1.55	6.44	3.61	.33	.025	292	297	58.2	23.8	22.7	16.1	6.98
MAX	4.5	9.0	9.0	1.2	.06	3450	2140	146	107	105	190	16
MIN	.23	3.5	1.3	.01	.00	.03	96	22	6.8	3.5	.50	4.5
AC-FT	95	383	222	20	1.4	17960	17670	3580	1420	1400	992	416

CAL YR 1977 TOTAL 4387.28 MEAN 12.0 MAX 400 MIN .00 AC-FT 8700
WTR YR 1978 TOTAL 22255.73 MEAN 61.0 MAX 3450 MIN .00 AC-FT 44140

06479515 WILLOW CREEK NEAR WATERTOWN, SD

LOCATION.--Lat 44°54'17", long 97°03'31", in NE¼NW¼ sec.34, T.117 N., R.52 W., Codington County, Hydrologic Unit 10170202, on right bank 5 ft (2 m) downstream from bridge, 4.7 mi (7.6 km) upstream from mouth, and 2.8 mi (4.5 km) east of Watertown.

DRAINAGE AREA.--125 mi² (324 km²), approximately.

PERIOD OF RECORD.--September 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,721.24 ft (524.634 m) National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--7 years, 14.6 ft³/s (0.413 m³/s), 10,580 acre-ft/yr (13.0 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,930 ft³/s (83.0 m³/s) Mar. 31, 1978, gage height, 7.02 ft (2.140 m); maximum gage height, 9.86 ft (3.005 m) Mar. 15, 1972 (backwater from ice); no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 200 ft³/s (5.66 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 28	0915	750	21.2	*a9.12	2.780	Apr. 7	0700	237	6.71	4.69	1.430
Mar. 31	2400	*2930	83.0	7.02	2.140	Aug. 27	1700	1550	43.9	6.24	1.902

a Ice jam.
Minimum daily discharge, 0.04 ft³/s (0.001 m³/s) Feb. 1.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.7	10	6.6	1.9	.04	.65	753	77	49	6.5	2.8	9.5
2	3.4	10	6.8	1.7	.05	.60	161	70	42	7.1	2.4	8.1
3	3.4	8.8	7.1	1.5	.06	.55	81	64	38	7.7	2.1	6.7
4	3.2	7.6	7.4	1.6	.07	.50	118	59	35	8.9	1.8	5.3
5	2.8	6.5	6.6	1.8	.08	.47	145	55	32	8.3	1.6	3.6
6	2.6	6.5	5.8	1.9	.09	.44	163	54	28	7.7	1.4	3.2
7	4.7	5.9	5.0	1.7	.10	.47	187	55	26	7.7	1.4	2.7
8	4.4	7.1	4.4	1.4	.12	.51	106	86	25	8.3	1.1	1.9
9	7.0	7.7	3.9	1.1	.15	.56	105	104	25	8.3	.92	1.6
10	7.8	5.9	3.3	.80	.19	.66	126	76	22	8.3	.83	1.4
11	6.4	5.3	2.9	.80	.26	.75	113	64	23	8.3	.79	1.4
12	5.9	3.2	2.5	.25	.25	.86	122	56	22	8.3	.66	3.0
13	5.2	3.7	2.1	.30	.24	1.0	104	55	22	7.7	.53	2.9
14	4.5	5.0	2.3	.35	.23	1.2	97	54	18	7.1	.47	2.8
15	3.6	6.0	2.5	.30	.22	1.5	95	52	18	7.1	.45	2.3
16	3.4	7.5	2.7	.25	.21	1.3	92	45	16	7.1	.64	2.0
17	2.9	7.0	3.0	.17	.25	1.2	92	28	13	6.5	.65	2.1
18	2.7	6.8	3.4	.12	.32	1.0	99	28	13	5.3	.48	3.2
19	2.8	6.6	3.7	.09	.40	1.5	117	28	10	5.3	.32	2.9
20	2.6	6.4	2.9	.06	.50	2.5	107	27	9.4	4.7	.28	2.5
21	2.5	6.2	2.1	.05	.60	6.0	100	25	8.7	5.3	.18	2.6
22	2.4	6.0	2.2	.06	.62	15	115	24	8.3	5.9	.15	2.7
23	2.4	5.8	2.4	.07	.65	30	135	24	7.0	5.9	.11	2.4
24	2.3	5.6	2.5	.08	.70	80	162	23	6.4	5.3	.08	1.9
25	2.3	5.4	2.7	.09	.75	150	133	25	5.8	5.3	.08	1.6
26	2.2	5.2	2.4	.10	.80	300	109	24	5.4	3.7	6.5	1.4
27	2.2	5.4	2.2	.09	.76	500	98	25	4.7	3.5	345	1.2
28	2.2	5.6	2.0	.08	.70	600	90	28	4.1	3.1	126	1.1
29	2.2	5.9	2.2	.07	---	700	89	47	3.7	2.9	60	1.0
30	3.1	6.1	2.3	.06	---	1250	85	109	3.7	2.9	24	.96
31	6.5	---	2.1	.05	---	2000	---	66	---	2.9	14	---
TOTAL	113.3	190.7	110.0	18.89	9.41	5649.22	4099	1557	544.2	192.9	597.72	85.96
MEAN	3.65	6.36	3.55	.61	.34	182	137	50.2	18.1	6.22	19.3	2.87
MAX	7.8	10	7.4	1.9	.80	2000	753	109	49	8.9	345	9.5
MIN	2.2	3.2	2.0	.05	.04	.44	81	23	3.7	2.9	.08	.96
AC-FT	225	378	218	37	19	11210	8130	3090	1080	383	1190	171

CAL YR 1977 TOTAL 2358.95 MEAN 6.46 MAX 275 MIN .00 AC-FT 4680
WTR YR 1978 TOTAL 13168.30 MEAN 36.1 MAX 2000 MIN .04 AC-FT 26120

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'54", long 97°02'39", in SW¼SW¼ sec.26, T.115 N., R.52 W., Hamlin County, Hydrologic Unit 10170202, on right bank at upstream side of highway bridge on State Highway 22, 3.25 mi (5.2 km) east of intersection of U.S. Highway 81 and State Highway 22, and 1.0 mi (1.6 km) northwest of Castlewood.

PERIOD OF RECORD.--October 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,667.52 ft (508.260 m) National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,740 ft^3/s (49.3 m^3/s) Mar. 31, 1978, gage height, 11.10 ft (3.383 m); maximum gage height, 11.20 ft (3.414 m) Mar. 28, 1978 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT PERIOD.--Water year 1977: Maximum discharge, 1,090 ft^3/s (30.9 m^3/s) June 16, gage height, 10.33 ft (3.149 m), no other peak above base of 450 ft^3/s (12.7 m^3/s); no flow Dec. 30 to Mar. 8.

Water year 1978: Peak discharges above base of 450 ft^3/s (12.7 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 28	1200	1450	41.1	a*11.20	3.414	Apr. 24	1900	523	14.8	8.35	2.545
Mar. 31	2345	*1740	49.3	11.10	3.383	Aug. 28	1445	495	14.0	8.04	2.451

a Ice jam.
No flow Mar. 3-9.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1976 TO SEPTEMBER 1977
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	.23	1.6	.07	.00	.00	.00	27	10	.52	14	1.6	[illegible]
2	.28	1.6	.05	.00	.00	.00	25	9.7	.56	12	3.4	14
3	.35	.65	.03	.00	.00	.00	20	8.6	.65	13	2.7	8.3
4	.43	.86	.04	.00	.00	.00	19	7.6	.56	11	2.7	6.0
5	.52	1.0	.05	.00	.00	.00	18	5.5	.35	10	3.5	4.8
6	.61	1.0	.06	.00	.00	.00	17	4.4	.23	10	4.8	3.8
7	.70	1.6	.05	.00	.00	.00	16	5.5	.23	9.7	4.6	2.9
8	.78	1.6	.05	.00	.00	.00	15	7.2	.29	9.7	3.7	2.2
9	.84	1.4	.04	.00	.00	.01	15	6.2	.18	9.4	3.3	1.7
10	.88	1.2	.04	.00	.00	.05	12	5.5	.18	9.0	2.8	1.4
11	.92	.95	.04	.00	.00	.15	11	5.2	.35	10	2.4	1.1
12	.82	.82	.05	.00	.00	4.0	9.5	4.8	.13	9.4	2.0	.86
13	.72	.70	.05	.00	.00	20	8.5	3.0	.06	10	1.7	.76
14	.61	.60	.05	.00	.00	200	7.0	1.2	.06	13	1.5	.67
15	.49	.45	.06	.00	.00	140	7.5	1.0	5.2	10	1.7	.60
16	.40	.48	.06	.00	.00	100	9.0	.88	306	8.6	1.9	.54
17	.52	.52	.07	.00	.00	80	11	.75	706	6.2	2.1	.49
18	.65	.55	.07	.00	.00	50	13	.70	250	2.7	2.3	.46
19	.75	.58	.05	.00	.00	30	17	.66	97	1.0	2.4	.43
20	.88	.62	.03	.00	.00	22	20	.80	62	.75	2.6	.40
21	1.0	.52	.02	.00	.00	16	22	1.0	48	.86	2.8	.38
22	1.2	.43	.02	.00	.00	12	23	1.2	40	.56	3.0	7.0
23	.86	.31	.02	.00	.00	11	25	1.5	44	.56	2.5	60
24	3.0	.19	.02	.00	.00	10	24	1.8	26	.75	2.2	200
25	2.4	.20	.03	.00	.00	10	22	2.0	19	.86	2.7	100
26	3.0	.21	.03	.00	.00	11	20	1.5	18	1.6	2.5	30
27	2.0	.23	.03	.00	.00	14	18	1.1	17	1.4	2.3	26
28	.86	.25	.02	.00	.00	18	16	.70	16	.86	2.8	23
29	1.6	.17	.01	.00	---	22	15	.54	15	.86	3.3	21
30	2.7	.10	.00	.00	---	25	13	.52	16	2.0	5.0	19
31	2.0	---	.00	.00	---	30	---	.48	---	2.0	25	---
TOTAL	33.00	21.39	1.21	.00	.00	825.21	495.5	101.53	1689.55	191.76	107.8	541.79
MEAN	1.06	.71	.039	.000	.000	26.6	16.5	3.28	56.3	6.19	3.48	18.1
MAX	3.0	1.6	.07	.00	.00	200	27	10	706	14	25	200
MIN	.23	.10	.00	.00	.00	.00	7.0	.48	.06	.56	1.5	.38
AC-FT	65	42	2.4	.00	.00	1640	983	201	3350	380	214	1070

WTR YR 1977 TOTAL 4008.74 MEAN 11.0 MAX 706 MIN .00 AC-FT 7950

06479525 BIG SIOUX RIVER NEAR CASTLEWOOD, SD--Continued

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	17	21	19	4.2	.36	.01	1700	330	187	45	27	84
2	16	24	20	4.0	.34	.01	992	319	165	46	27	68
3	15	23	20	4.2	.33	.00	368	303	148	51	25	57
4	14	21	19	4.4	.32	.00	259	286	135	50	24	50
5	13	20	18	4.7	.30	.00	279	264	128	50	26	45
6	12	19	16	4.9	.29	.00	346	246	122	49	26	40
7	17	18	14	5.0	.28	.00	377	243	122	48	26	38
8	27	20	12	3.5	.28	.00	321	311	115	47	27	36
9	25	43	11	2.0	.27	.00	263	386	110	48	26	35
10	24	54	9.0	1.0	.28	.01	317	332	105	46	24	33
11	23	51	7.8	1.1	.30	.04	330	292	109	43	23	31
12	23	48	6.0	1.2	.29	.10	341	262	107	44	23	39
13	22	45	6.8	1.3	.26	.11	371	241	96	41	24	35
14	21	43	7.6	1.1	.23	.12	316	232	85	40	23	36
15	21	40	8.5	1.0	.20	.14	307	213	77	39	23	32
16	20	37	9.5	.85	.18	.16	302	195	74	40	23	31
17	20	34	10	.65	.16	.20	295	186	71	40	23	30
18	20	31	8.6	.50	.14	.30	324	173	67	41	22	33
19	19	28	6.0	.40	.13	.80	392	179	64	38	21	32
20	19	25	5.0	.35	.11	1.5	390	173	58	38	20	30
21	19	23	5.4	.40	.12	3.0	362	132	55	39	19	29
22	18	20	5.8	.45	.12	10	350	106	53	41	19	27
23	17	18	6.0	.48	.13	40	402	97	49	37	20	26
24	16	16	5.8	.47	.13	300	503	95	48	34	18	25
25	16	15	5.0	.46	.11	500	488	100	46	32	17	24
26	16	15	4.0	.45	.09	400	432	110	45	30	19	24
27	16	16	4.3	.44	.06	850	394	125	42	29	39	23
28	15	16	4.8	.42	.03	1350	372	155	42	28	334	23
29	15	17	5.0	.40	---	1120	358	180	42	28	292	22
30	17	18	4.8	.39	---	1190	340	215	44	28	170	21
31	19	---	4.5	.37	---	1600	---	255	---	27	111	---
TOTAL	572	819	289.2	51.08	5.84	7366.50	12591	6736	2611	1237	1541	1059
MEAN	18.5	27.3	9.33	1.65	.21	238	420	217	87.0	39.9	49.7	35.3
MAX	27	54	20	5.0	.36	1600	1700	386	187	51	334	84
MIN	12	15	4.0	.35	.03	.00	259	95	42	27	17	21
AC-FT	1130	1620	574	101	12	14610	24970	13360	5180	2450	3060	2100

CAL YR 1977 TOTAL 5633.34 MEAN 15.4 MAX 706 MIN .00 AC-FT 11170
WTR YR 1978 TOTAL 34878.62 MEAN 95.6 MAX 1700 MIN .00 AC-FT 69180

06479529 STRAY HORSE CREEK NEAR CASTLEWOOD, SD

LOCATION.--Lat 44°43'52", long 96°57'23", in NE¼NE¼NW¼ sec.33, T.115 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, on right bank at downstream side of bridge on State Highway 22, 3.5 mi (5.6 km) east of Castlewood, 6.4 mi (10.3 km) upstream from mouth, and 7.0 mi (11.3 km) north of Dempster.

DRAINAGE AREA.--73.7 mi² (191 km²), approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,703.88 ft (519.343 m) National Geodetic Vertical Datum of 1929 (South Dakota Department of Transportation bench mark).

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--10 years, 11.1 ft³/s (0.314 m³/s), 8,040 acre-ft/yr (9.91 hm³/yr); median of yearly mean discharges, 7.2 ft³/s (0.20 m³/s), 5,200 acre-ft/yr (6.4 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,000 ft³/s (396 m³/s) Apr. 7, 1969, gage height, 14.65 ft (4.465 m), from rating curve extended above 3,500 ft³/s (99.1 m³/s) on basis of contracted-opening measurement of peak flow; no flow for many days each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 175 ft³/s (4.96 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 27	1845	1400	39.6	*a13.84	4.218
Mar. 30	--	*2000	56.6	ice jam	
Apr. 1	0015	984	27.9	9.33	2.844
Apr. 4	0215	257	7.28	7.51	2.289
Apr. 6	0215	255	7.22	7.47	2.277
May 28	1815	223	6.32	7.37	2.246

a Ice jam.
No flow Aug. 17-25.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.1	22	5.8	1.2	.31	.09	378	20	22	1.2	.35	1.8
2	42	19	6.0	1.1	.30	.08	148	19	16	1.1	.31	1.2
3	31	13	6.3	1.1	.30	.08	99	17	13	.80	.25	1.0
4	12	9.9	6.6	1.0	.29	.07	188	15	11	.65	.21	.80
5	1.7	8.0	6.3	.97	.29	.07	196	14	9.6	.60	.18	.66
6	1.5	7.0	6.0	1.0	.28	.07	220	12	8.0	.60	.16	.54
7	2.7	6.3	5.2	1.1	.28	.06	182	14	7.5	.70	.11	.45
8	9.6	7.3	4.3	1.2	.27	.06	85	68	6.3	.55	.09	.41
9	11	27	3.8	1.0	.26	.06	80	99	5.5	.45	.04	.31
10	14	15	3.2	.90	.24	.05	98	52	4.8	.50	.03	.22
11	10	12	2.8	.60	.24	.05	79	30	6.9	.50	.04	.21
12	7.7	15	2.5	.40	.24	.06	79	21	6.8	.80	.07	.65
13	6.2	12	2.2	.45	.26	.06	66	18	6.0	.80	.07	.70
14	5.1	12	2.0	.48	.24	.07	42	16	7.0	.65	.07	.75
15	4.3	11	2.1	.52	.21	.08	37	14	6.7	.40	.12	.60
16	3.7	10	2.3	.50	.18	.09	34	12	5.8	.28	.23	.75
17	3.2	9.2	2.5	.48	.16	.10	32	10	4.8	.28	.00	.70
18	2.7	8.4	2.7	.43	.14	.12	48	9.1	4.2	.28	.00	1.6
19	2.4	7.6	2.9	.38	.13	.20	75	8.5	3.5	.24	.00	2.9
20	2.3	7.1	2.6	.34	.11	.30	64	7.8	2.8	.28	.00	3.7
21	2.1	6.6	2.0	.30	.10	3.0	47	7.2	2.5	.45	.00	2.3
22	1.9	6.0	1.4	.28	.09	30	74	6.6	2.4	.65	.00	2.0
23	1.8	5.6	1.5	.29	.09	40	93	6.0	2.5	.70	.00	1.8
24	1.7	5.4	1.6	.33	.10	50	123	6.1	2.4	.65	.00	1.4
25	1.7	5.1	1.7	.37	.11	100	70	7.0	3.1	.65	.00	1.1
26	1.7	4.8	1.4	.36	.11	300	39	6.8	4.9	.60	4.5	.85
27	1.7	4.9	1.2	.36	.10	700	31	13	4.4	.45	86	.75
28	1.6	5.1	.98	.35	.09	750	27	44	3.4	.40	22	.70
29	1.5	5.3	.90	.34	---	700	24	54	2.1	.48	11	.45
30	1.9	5.5	1.0	.33	---	800	22	58	1.6	.66	4.5	.35
31	4.9	---	1.1	.32	---	938	---	37	---	.35	2.7	---
TOTAL	199.7	293.1	92.88	18.78	5.52	4412.82	2780	722.1	187.5	17.70	133.03	31.65
MEAN	6.44	9.77	3.00	.61	.20	142	92.7	23.3	6.25	.57	4.29	1.06
MAX	42	27	6.6	1.2	.31	938	378	99	22	1.2	86	3.7
MIN	1.5	4.8	.90	.28	.09	.05	22	6.0	1.6	.24	.00	.21
AC-FT	396	581	184	37	11	8750	5510	1430	372	35	264	63

CAL YR 1977 TOTAL 2554.22 MEAN 7.00 MAX 550 MIN .00 AC-FT 5070
WTR YR 1978 TOTAL 8894.78 MEAN 24.4 MAX 938 MIN .00 AC-FT 17640

06479640 HIDEWOOD CREEK NEAR ESTELLINE, SD

LOCATION.--Lat 44°36'42", long 96°54'17", in SW¼NW¼ sec.12, T.113 N., R.51 W., Hamlin County, Hydrologic Unit 10170202, on left bank at upstream side of highway bridge, 2.7 mi (4.3 km) north of Estelline, 2.8 mi (4.5 km) southeast of Dempster, and 4.7 mi (7.6 km) upstream from mouth.

DRAINAGE AREA.--164 mi² (425 km²), approximately.

PERIOD OF RECORD.--October 1968 to current year.

GAGE.--Water-stage recorder. Altitude of gage is 1,665 ft (507 m).

REMARKS.--Records fair except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--10 years, 25.0 ft³/s (0.708 m³/s), 18,110 acre-ft/yr (22.3 hm³/yr); median of yearly mean discharges, 18 ft³/s (0.51 m³/s), 13,000 acre-ft/yr (16 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,630 ft³/s (103 m³/s) Apr. 7, 1969, gage height, 11.36 ft (3.463 m); maximum gage height, 11.55 ft (3.520 m) Apr. 8, 1969 (backwater from collapsed bridge), no flow at times in 1969, 1971, 1974-77.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 300 ft³/s (8.50 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 28	0345	ice jam		*10.11	3.082
Mar. 31	0800	*1910	54.1	9.75	2.972
Apr. 24	unknown	451	12.8	6.08	1.853
May 28	1915	616	17.4	6.68	2.036

Minimum daily discharge, 0.41 ft³/s (0.012 m³/s) Oct. 6, 29.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	42	10	5.8	1.6	1.7	1160	105	73	18	3.3	3.3
2	11	34	11	5.7	1.6	1.6	644	103	60	16	3.3	3.5
3	5.1	23	11	5.5	1.5	1.6	517	92	54	15	3.3	2.7
4	2.2	16	10	5.3	1.5	1.5	552	84	48	14	3.0	2.2
5	.81	12	10	5.1	1.5	1.5	545	78	41	13	2.8	1.7
6	.41	10	10	5.0	1.4	1.4	521	73	37	12	2.4	1.4
7	3.9	8.6	9.5	5.2	1.4	1.4	523	74	35	12	2.0	1.4
8	18	12	9.0	5.5	1.3	1.4	374	145	31	13	1.9	1.4
9	17	48	8.5	5.7	1.3	1.5	350	173	28	13	1.7	1.3
10	13	30	8.1	4.8	1.2	1.6	348	122	27	12	1.4	1.3
11	12	27	7.6	3.5	1.2	1.7	311	89	29	12	1.0	1.1
12	10	24	7.3	2.0	1.2	1.8	289	78	29	11	.93	1.8
13	7.4	22	6.8	2.1	1.3	1.9	242	77	29	11	.81	1.9
14	5.8	20	6.3	2.3	1.4	2.0	198	69	27	16	.69	2.0
15	4.3	18	6.6	2.5	1.3	2.2	171	58	26	13	1.4	1.8
16	4.1	16	6.9	2.7	1.3	2.4	145	51	24	12	3.5	1.4
17	3.3	15	7.2	2.5	1.2	2.8	131	46	24	10	2.4	1.0
18	2.6	14	7.4	2.3	1.2	3.3	156	41	23	9.0	1.5	1.7
19	2.0	13	7.6	2.1	1.1	4.0	211	39	22	8.0	1.0	2.5
20	1.9	12	7.0	1.9	1.1	6.0	199	36	21	7.0	.80	2.1
21	1.7	11	6.2	1.7	1.1	10	168	32	20	6.0	.67	2.0
22	.93	10	5.4	1.5	1.2	18	210	30	19	7.0	.57	1.9
23	1.0	9.5	5.0	1.4	1.4	30	300	26	19	8.0	.59	1.6
24	1.7	8.6	5.4	1.5	1.6	60	380	24	18	9.0	1.1	1.8
25	1.0	8.3	5.8	1.7	1.9	100	300	24	30	7.1	.59	1.7
26	1.0	8.0	5.3	1.9	1.8	200	230	23	46	5.8	.85	1.4
27	2.0	8.6	5.0	1.8	1.8	500	180	36	47	5.1	7.1	1.4
28	.81	9.2	4.6	1.8	1.7	1000	150	173	31	4.8	13	1.2
29	.41	9.6	4.8	1.8	---	900	125	300	24	4.3	8.0	.74
30	.81	10	5.1	1.7	---	1000	115	247	20	4.1	4.3	.61
31	15	---	5.5	1.7	---	1330	---	98	---	3.7	2.9	---
TOTAL	173.18	509.4	225.9	96.0	39.1	5191.3	9745	2646	962	311.9	78.80	51.85
MEAN	5.59	17.0	7.29	3.10	1.40	167	325	85.4	32.1	10.1	2.54	1.73
MAX	22	48	11	5.8	1.9	1330	1160	300	73	18	13	3.5
MIN	.41	8.0	4.6	1.4	1.1	1.4	115	23	18	3.7	.57	.61
AC-FT	344	1010	448	190	78	10300	19330	5250	1910	619	156	103

CAL YR 1977 TOTAL 5151.31 MEAN 14.1 MAX 800 MIN .00 AC-FT 10220
WTR YR 1978 TOTAL 20030.43 MEAN 54.9 MAX 1330 MIN .41 AC-FT 39730

06479910 SIXMILE CREEK NEAR BROOKINGS, SD

LOCATION.--Lat 44°20'46", long 96°44'51", in NE¼SE¼ sec.7, T.110 N., R.49 W., Brookings County, Hydrologic Unit 10170202, on left bank 8 ft (2 m) downstream from bridge, 0.7 mi (1.1 km) upstream from Interstate Highway 29 and 2.7 mi (4.3 km) northeast of Brookings.

DRAINAGE AREA.--54.0 mi² (140 km²), approximately.

PERIOD OF RECORD.--September 1970 to current year. February 1951 to August 1970 (gage heights and discharge measurements only in files of Corps of Engineers).

REVISED RECORDS.--WRD SD-76-1: 1975.

GAGE.--Water-stage recorder. Datum of gage is 1,618.57 ft (493.340 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Sept. 1, 1970, at datum 3.00 ft (0.914 m) higher, and Sept. 1, 1970, to Nov. 2, 1975, at datum 2.00 ft (0.610 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--8 years, 6.49 ft³/s (0.184 m³/s), 4,700 acre-ft/yr (5.80 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 936 ft³/s (26.5 m³/s) Mar. 28, 1978, gage height, 9.45 ft (2.880 m); maximum gage height, 10.17 ft (3.100 m) Mar. 24, 1978 (backwater from ice); no flow for many days in each year.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 100 ft³/s (2.83 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 24	unknown	ice jam		*10.17	3.100
Mar. 28	0415	*936	26.5	9.45	2.880
Mar. 31	0530	810	22.9	9.14	2.786
Apr. 4	1815	264	7.48	7.06	2.152
Apr. 24	0645	135	3.82	5.89	1.795
May 9	1415	112	3.17	5.69	1.734

No flow Sept. 7-11.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	2.9	1.6	.35	.23	.07	294	14	8.9	1.6	.60	.15
2	1.7	1.9	1.7	.34	.23	.06	116	13	10	1.5	.65	.16
3	1.2	1.7	1.8	.33	.22	.06	67	12	8.1	1.3	.54	.13
4	.91	1.4	1.6	.32	.22	.05	179	10	5.7	1.3	.48	.06
5	.66	1.1	1.5	.32	.22	.05	134	9.1	4.3	1.2	.45	.03
6	.51	1.1	1.3	.31	.21	.04	119	7.7	3.3	1.1	.38	.01
7	1.2	1.1	1.2	.30	.21	.04	102	9.5	2.6	1.2	.34	.00
8	7.5	1.8	1.1	.32	.21	.05	68	39	2.0	1.5	.30	.00
9	7.5	6.1	1.0	.35	.20	.05	35	88	1.7	2.0	.26	.00
10	3.2	5.2	.95	.27	.19	.07	39	64	1.5	2.2	.23	.00
11	2.2	4.6	.88	.22	.17	.10	39	33	1.3	1.8	.18	.00
12	1.7	4.2	.80	.16	.18	.13	31	20	1.3	1.6	.15	.03
13	1.7	3.8	.74	.17	.19	.20	25	16	1.2	1.3	.10	.25
14	1.4	3.5	.68	.19	.20	.40	23	12	1.2	1.2	.09	.43
15	1.1	3.3	.60	.22	.17	.60	15	8.9	1.1	1.0	.28	.55
16	1.0	3.0	.63	.26	.13	1.0	12	6.8	1.1	.80	.33	.47
17	1.0	2.7	.67	.24	.10	2.0	12	5.6	1.0	.67	.33	.37
18	.99	2.5	.69	.23	.08	4.0	24	5.0	.97	.52	.30	.49
19	.88	2.3	.72	.22	.06	8.0	41	5.0	.96	.44	.26	.67
20	.89	2.1	.55	.21	.05	15	45	4.3	1.0	.45	.20	.67
21	.80	1.9	.45	.20	.04	50	39	3.5	.97	.74	.14	.58
22	.59	1.8	.38	.19	.05	250	33	3.0	1.0	1.3	.12	.51
23	.51	1.6	.30	.18	.06	290	74	2.6	.90	2.4	.12	.45
24	.44	1.5	.34	.20	.07	340	119	2.3	.96	2.2	.12	.45
25	.50	1.4	.37	.22	.09	400	66	3.0	.97	1.7	.20	.43
26	.56	1.3	.33	.25	.08	470	37	3.2	1.0	1.7	.18	.43
27	.55	1.4	.30	.25	.08	559	26	11	1.1	1.4	.22	.39
28	.52	1.4	.25	.24	.07	571	21	15	1.4	1.0	.24	.33
29	.50	1.5	.27	.24	---	328	18	15	1.8	.85	.26	.35
30	.63	1.6	.30	.24	---	306	16	13	1.9	.71	.18	.35
31	1.9	---	.32	.23	---	440	---	8.4	---	.66	.17	---
TOTAL	46.14	71.7	24.32	7.77	4.01	4035.97	1869	462.9	71.23	39.34	8.40	8.74
MEAN	1.49	2.39	.78	.25	.14	130	62.3	14.9	2.37	1.27	.27	.29
MAX	7.5	6.1	1.8	.35	.23	571	294	88	10	2.4	.65	.67
MIN	.44	1.1	.25	.16	.04	.04	12	2.3	.90	.44	.09	.00
AC-FT	92	142	48	15	8.0	8010	3710	918	141	78	17	17

CAL YR 1977 TOTAL 2069.98 MEAN 5.67 MAX 280 MIN .00 AC-FT 4110
WTR YR 1978 TOTAL 6649.52 MEAN 18.2 MAX 571 MIN .00 AC-FT 13190

06480000 BIG SIOUX RIVER NEAR BROOKINGS, SD

LOCATION.--Lat 44°10'48", long 96°44'55", in NW¼NW¼ sec.8, T.108 N., R.49 W., Moody County, Hydrologic Unit 10170203, on right bank 3 ft (1 m) downstream from highway bridge, 2.2 mi (3.5 km) downstream from Medary Creek and 9.5 mi (15.3 km) southeast of Brookings.

DRAINAGE AREA.--4,420 mi^2 (11,450 km^2), approximately, of which about 1,970 mi^2 (5,100 km^2) is probably noncontributing.

PERIOD OF RECORD.--August 1953 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,551.91 ft (473.022 m) National Geodetic Vertical Datum of 1929. Prior to May 30, 1959, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--25 years, 158 ft^3/s (4.475 m^3/s), 114,500 acre-ft/yr (141 hm^3/yr); median of yearly mean discharges, 110 ft^3/s (3.12 m^3/s), 79,700 acre-ft/yr (98 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,900 ft^3/s (960 m^3/s) Apr. 9, 1969, gage height, 14.77 ft (4.502 m); no flow at times in 1956, 1959, 1976, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft^3/s (28.3 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 23	unknown	3900	110	ice jam		Mar. 30	0015	*5960	169	---	---
Mar. 29	1500	unknown		*11.84	3.609	Apr. 26	1800	1160	32.9	7.75	2.362

Minimum daily discharge, 10 ft^3/s (0.283 m^3/s) Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	63	112	43	14	12	4650	778	790	152	78	178
2	58	63	115	40	14	12	4970	713	837	140	76	161
3	52	72	120	38	13	11	5030	668	778	131	72	130
4	54	85	117	37	13	11	4650	625	672	125	69	109
5	49	89	110	39	13	10	3730	582	571	125	66	94
6	47	86	100	41	12	11	3050	540	487	131	64	83
7	55	82	92	39	12	12	2280	524	420	135	61	76
8	78	82	85	36	11	12	1910	638	361	146	60	69
9	86	95	80	33	12	12	1720	839	314	158	57	65
10	84	105	75	27	13	12	1590	908	277	157	56	61
11	81	110	70	27	13	12	1430	931	256	149	54	58
12	82	107	67	28	14	12	1270	902	248	142	54	65
13	81	105	66	29	14	13	1160	840	238	128	51	66
14	76	103	67	27	15	14	1040	746	226	119	52	67
15	72	100	69	26	15	15	936	664	219	111	56	68
16	69	97	70	24	14	17	843	601	212	105	56	64
17	64	95	72	23	14	20	773	550	201	99	55	60
18	61	94	72	21	13	75	855	508	193	95	54	66
19	58	93	70	19	12	350	1080	468	181	90	51	71
20	54	92	64	18	11	575	1100	434	170	86	50	69
21	52	91	62	19	12	1000	1040	396	163	94	48	67
22	44	90	62	20	12	1520	973	373	155	118	46	63
23	42	89	63	19	12	3300	918	351	148	126	45	60
24	42	88	61	19	13	3930	990	329	142	122	44	57
25	41	88	56	18	13	3360	1110	313	138	116	43	55
26	40	91	52	18	13	2670	1150	301	133	110	43	53
27	37	96	49	17	13	2430	1130	300	131	103	43	51
28	35	98	48	17	12	3980	1060	355	139	96	50	49
29	35	104	50	16	---	5620	953	487	178	89	56	48
30	37	109	52	15	---	5450	857	560	173	85	105	46
31	47	---	49	15	---	4780	---	642	---	82	145	---
TOTAL	1777	2762	2297	808	362	39258	54248	17866	9151	3665	1860	2229
MEAN	57.3	92.1	74.1	26.1	12.9	1266	1808	576	305	118	60.0	74.3
MAX	86	110	120	43	15	5620	5030	931	837	158	145	178
MIN	35	63	48	15	11	10	773	300	131	82	43	46
AC-FT	3520	5480	4560	1600	718	77870	107600	35440	18150	7270	3690	4420

CAL YR 1977 TOTAL 30832.85 MEAN 84.5 MAX 1700 MIN .00 AC-FT 61160
WTR YR 1978 TOTAL 136283.00 MEAN 373 MAX 5620 MIN 10 AC-FT 270300

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD

LOCATION.--Lat 43°47'25", long 96°44'42", in NW¼NW¼ sec.29, T.104 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on left bank at downstream side of highway bridge, 0.2 mi (0.3 km) downstream from confluence of divided channels and 3.0 mi (4.8 km) southwest of Dell Rapids.

DRAINAGE AREA.--5,060 mi² (13,100 km²), approximately, of which about 1,970 mi² (5,100 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1948 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,455.99 ft (443.786 m) National Geodetic Vertical Datum of 1929. Prior to Nov. 11, 1949, nonrecording gage and Nov. 11, 1949, to Sept. 30, 1951, water-stage recorder, at present site at datum 0.04 ft (0.012 m) lower.

REMARKS.--Records good except those for winter periods, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--30 years, 254 ft³/s (7.193 m³/s), 184,000 acre-ft/yr (227 hm³/yr); median of yearly mean discharges, 200 ft³/s (5.66 m³/s), 145,000 acre-ft/yr (180 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,300 ft³/s (1,170 m³/s) Apr. 9, 1969, gage height, 16.47 ft (5.020 m); no flow Aug. 25 to Oct. 17, 1976.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 23	1030	*5550	157	*a12.97	3.953	May 12	1930	1070	30.3	6.56	1.999
Apr. 1	0230	4940	140	12.38	3.773						

a Ice jam.
Minimum daily discharge, 15 ft³/s (0.42 m³/s) Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	66	148	69	25	18	4880	1110	635	174	231	59
2	65	71	144	68	24	18	4600	1020	723	179	228	82
3	65	72	137	63	24	18	4380	941	840	172	107	118
4	63	78	137	59	23	17	4380	883	872	165	90	132
5	60	81	130	56	22	15	4420	832	840	165	86	124
6	61	86	120	59	22	16	4250	781	758	178	81	108
7	89	85	111	56	22	16	3630	756	667	284	74	94
8	83	93	108	53	22	16	3020	761	553	172	70	83
9	86	96	109	50	21	17	2550	798	477	160	66	73
10	80	106	105	49	20	18	2230	926	435	155	65	65
11	81	83	100	49	20	20	1980	1040	388	162	61	64
12	91	103	94	47	20	30	1790	1050	351	163	60	68
13	100	80	88	44	20	100	1590	1060	326	161	59	65
14	98	71	81	41	20	90	1400	1030	308	153	59	65
15	96	72	77	40	20	150	1270	952	293	134	70	65
16	93	76	75	38	19	350	1140	861	281	126	85	61
17	82	68	120	37	19	450	1070	780	271	123	73	59
18	81	80	125	37	19	550	1130	714	258	113	62	71
19	77	96	115	35	20	1300	1170	658	248	102	60	67
20	78	120	117	34	19	1900	1240	606	234	97	61	62
21	71	165	119	34	19	2300	1340	560	227	115	61	59
22	67	105	114	33	19	2950	1300	515	222	153	59	61
23	67	134	109	32	19	5000	1260	474	210	155	63	61
24	66	141	109	32	19	4490	1250	447	203	150	58	59
25	66	150	105	31	19	4240	1240	433	194	144	57	58
26	64	158	94	30	18	4280	1300	425	175	139	57	58
27	62	160	84	29	18	4020	1360	417	168	134	53	57
28	61	160	80	29	18	3430	1360	411	163	129	50	60
29	63	158	73	28	---	3060	1310	425	160	125	50	61
30	68	155	69	27	---	3610	1220	453	165	119	52	59
31	71	---	69	26	---	4730	---	567	---	112	53	---
TOTAL	2319	3169	3266	1315	570	47219	65060	22686	11645	4613	2361	2178
MEAN	74.8	106	105	42.4	20.4	1523	2169	732	388	149	76.2	72.6
MAX	100	165	148	69	25	5000	4880	1110	872	284	231	132
MIN	60	66	69	26	18	15	1070	411	160	97	50	57
AC-FT	4600	6290	6480	2610	1130	93660	129000	45000	23100	9150	4680	4320

CAL YR 1977 TOTAL 41940.68 MEAN 115 MAX 2350 MIN .00 AC-FT 83190
WTR YR 1978 TOTAL 166401.00 MEAN 456 MAX 5000 MIN 15 AC-FT 330100

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960-62, 1968 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1967 to September 1970, October 1973 to current year.
WATER TEMPERATURES: October 1967 to September 1971, October 1974 to September 1975.
SUSPENDED SEDIMENT DISCHARGE: October 1967 to September 1976.

REMARKS.--There are many days of no samples during the year. Conductance was computed during these periods using a discharge-conductance ratio.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,100 micromhos Jan. 27, 1977; minimum daily, 140 micromhos Apr. 9, 1969.
WATER TEMPERATURES: Maximum daily, 33.5°C July 7, 12, 16, 20, 1974; minimum daily, 0.0°C on many days during winter periods.
SEDIMENT CONCENTRATIONS: Maximum daily mean, 619 mg/L Apr. 19, 1974; minimum daily mean, 0 mg/L Aug. 25 to Sept. 30, 1976.
SEDIMENT LOADS: Maximum daily, 40,600 tons (36,800 tonnes) Apr. 9, 1969; minimum daily, 0 ton (0 tonne) Aug. 8, 9, 14, Aug. 24 to Sept. 30, 1976.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,870 micromhos Jan. 16; minimum daily, 215 micromhos Mar. 23.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)
OCT												
11...	1200	81	650	8.1	6.0	10	13.4	31	--	--	432	.59
21...	1100	72	840	8.1	9.0	15	11.4	40	265	103	572	.78
NOV												
01...	1130	66	900	7.8	9.0	9	10.3	24	1520	1210	572	.78
DEC												
07...	1320	112	570	7.9	.0	4	11.3	24	770	300	801	1.09
22...	1330	114	1100	8.2	.0	4	11.4	28	680	340	694	.94
JAN												
05...	1240	56	1100	7.2	.0	2	10.1	25	1060	210	759	1.03
23...	1300	31	1080	7.3	.0	2	8.4	21	910	360	403	.55
FEB												
06...	1325	22	950	7.2	.0	2	--	19	680	300	828	1.13
14...	1245	20	760	7.1	.0	2	9.3	19	340	190	782	1.06
MAR												
03...	1250	18	810	7.1	.0	2	8.1	0	60	K20	746	1.01
APR												
11...	1430	1960	470	8.0	8.0	15	11.0	29	--	--	321	.44
24...	1230	1260	770	8.2	6.0	6	12.2	33	--	--	497	.68
MAY												
09...	1320	800	820	8.0	11.0	5	12.3	37	70	80	506	.69
25...	1015	430	840	8.0	21.5	6	8.3	61	440	130	530	.72
JUN												
02...	1130	716	780	7.9	16.0	6	8.9	35	--	--	502	.68
22...	1500	228	840	8.2	20.0	6	9.8	33	360	120	545	.74
JUL												
12...	1415	167	600	8.2	26.0	20	13.2	46	235	155	516	.70
27...	1030	137	780	8.7	23.0	25	--	35	--	--	542	.74
AUG												
23...	1330	63	800	7.5	25.5	30	6.7	51	1220	860	537	.73
SEP												
07...	1230	96	670	7.8	26.5	12	8.4	29	980	260	450	.61
27...	0915	57	730	8.1	15.5	21	--	39	890	250	488	.66

K Non-ideal colony count.

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT											
11...	94.5	20	.06	.00	.02	1.1	1.1	1.2	.22	.02	7.1
21...	111	45	.01	--	.01	1.3	1.3	1.3	.17	--	7.9
NOV											
01...	102	17	.12	--	.06	.94	1.0	1.1	.14	.04	9.2
DEC											
07...	242	7	.83	.88	.75	.45	1.2	2.0	.20	.17	6.3
22...	214	11	.85	--	1.1	1.4	2.5	3.4	.23	--	5.4
JAN											
05...	115	16	1.2	1.1	1.3	.50	1.8	3.0	.22	.20	10
23...	33.7	35	1.2	--	1.6	.20	1.8	3.0	.22	--	4.4
FEB											
06...	49.2	12	.94	.84	1.2	1.0	2.2	3.1	.21	.20	--
14...	42.2	13	1.2	--	1.2	.60	1.8	3.0	.22	--	3.5
MAR											
03...	36.3	1	1.6	1.8	1.4	.00	1.3	2.9	.19	.19	3.0
APR											
11...	1700	34	.79	.85	.38	1.2	1.6	2.4	.26	.19	9.2
24...	1690	23	.28	--	.03	1.2	1.2	1.5	.19	--	12
MAY											
09...	1090	20	.02	.17	.01	.84	.85	.87	.17	.07	9.3
25...	615	24	.04	--	.03	.97	1.0	1.0	.17	--	9.8
JUN											
02...	970	48	.21	.19	.03	1.1	1.1	1.3	.28	.21	12
22...	336	40	.02	--	.01	1.1	1.1	1.1	.24	--	10
JUL											
12...	233	49	.01	.01	.01	1.7	1.7	1.7	.21	.05	10
27...	200	48	.15	--	.00	1.5	1.5	1.7	.24	--	12
AUG											
23...	91.3	92	.06	--	.17	1.5	1.7	1.8	.24	--	12
SEP											
07...	117	70	.06	.11	.01	1.9	1.9	2.0	.27	.10	15
27...	75.1	17	.05	--	.01	1.4	1.4	1.5	.16	--	--

DATE	TIME	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)
OCT										
11...	1200	310	130	71	31	28	16	.7	6.7	210
NOV										
01...	1130	410	170	96	42	34	15	.7	6.7	290
DEC										
07...	1320	610	270	150	57	34	11	.6	7.2	410
JAN										
05...	1240	550	240	130	54	--	--	--	6.6	380
FEB										
06...	1325	580	240	140	56	42	13	.8	6.3	410
MAR										
03...	1250	530	230	130	50	38	13	.7	5.1	370
APR										
11...	1430	260	90	67	23	8.8	7	.2	7.3	210
MAY										
09...	1320	410	160	93	42	18	9	.4	6.8	300
JUN										
02...	1130	410	160	93	42	20	10	.4	6.9	300
JUL										
12...	1415	400	180	87	45	29	13	.6	6.3	270
SEP										
07...	1230	310	150	74	30	27	16	.7	8.6	190

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	BORON, DIS-SOLVED (UG/L AS B) (01020)	SEDI-MENT, SUS-PENDED (MG/L) (80154)	SEDI-MENT DIS-CHARGE, SUS-PENDED (T/DAY) (80155)
OCT 11...	0	170	160	33	.2	6.3	440	110	96	21
NOV 01...	0	240	200	30	.3	9.1	561	120	75	13
DEC 07...	0	340	270	31	.1	25	781	120	74	22
JAN 05...	0	310	280	35	.2	25	--	120	107	16
FEB 06...	0	340	280	42	.3	13	786	140	119	7.0
MAR 03...	0	300	240	38	.4	25	718	140	97	4.7
APR 11...	0	170	87	8.3	.1	16	325	70	75	399
MAY 09...	0	250	170	17	.2	5.4	501	90	184	397
JUN 02...	0	250	150	16	.2	13	490	120	92	178
JUL 12...	0	220	170	25	.3	9.6	506	140	--	--
SEP 07...	0	160	180	23	.2	13	450	130	93	24

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	705	900	930	1050	960	1090	290	760	740	800	830	820
2	695	900	930	1070	915	1120	295	770	710	760	830	810
3	700	890	930	1080	870	1110	300	770	600	800	830	810
4	710	890	940	1120	900	1110	310	770	710	810	830	850
5	720	875	940	1060	950	1100	315	770	710	780	800	860
6	700	880	940	1130	970	1100	330	770	750	790	800	880
7	675	880	940	1140	1000	1120	380	770	750	550	790	880
8	680	880	940	1120	1020	1000	420	780	790	710	810	860
9	690	820	960	1100	870	1100	480	800	720	770	800	870
10	625	810	960	1100	1100	1110	510	810	740	790	780	870
11	600	810	960	1080	1120	1110	540	860	780	790	830	870
12	620	845	960	1180	1100	1100	550	870	820	770	820	860
13	570	860	960	1070	1000	1100	580	830	810	770	850	870
14	600	870	970	1140	940	700	600	840	810	750	850	870
15	660	890	970	1750	1000	400	630	840	830	780	870	620
16	670	900	970	1870	1040	380	650	860	820	780	870	640
17	790	900	980	1260	1040	250	660	860	810	780	860	660
18	700	890	980	1070	1090	250	680	860	810	780	870	680
19	480	865	980	1200	1000	250	670	850	810	790	870	690
20	760	880	980	1170	975	220	735	850	720	810	870	690
21	620	890	980	1100	855	225	800	830	750	790	880	670
22	620	905	980	1000	850	220	805	840	800	750	800	670
23	620	910	980	1030	855	215	800	840	800	750	790	680
24	620	910	980	1020	1120	580	780	840	750	770	820	690
25	555	910	990	1020	910	335	800	840	800	770	830	710
26	695	920	990	1020	930	350	810	830	810	780	840	710
27	770	920	990	1030	930	295	825	820	810	780	830	710
28	770	920	990	1030	950	220	840	830	800	780	850	710
29	800	920	995	1010	---	290	810	820	810	760	860	710
30	800	920	1000	1010	---	290	790	830	810	760	850	740
31	790	---	1010	1000	---	290	---	820	---	780	840	---
MEAN	678	885	968	1130	974	646	600	820	773	769	834	765

06481000 BIG SIOUX RIVER NEAR DELL RAPIDS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT									
21...	1100	2	<10	470	<100	200	.0	0	8
DEC									
22...	1330	2	6	260	7	230	.0	2	20
JAN									
23...	1300	2	4	130	10	190	.0	2	20
FEB									
14...	1245	1	1	80	14	180	.1	0	20
APR									
24...	1230	3	7	500	23	150	.0	0	30
MAY									
25...	1015	--	6	590	4	270	--	--	20
JUN									
22...	1500	4	6	1100	30	380	.1	1	20
JUL									
27...	1030	5	7	1300	8	320	.0	1	20
AUG									
23...	1330	6	10	1900	32	530	.0	1	20
SEP									
27...	0915	4	2	1100	11	310	.0	1	20

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	12.0	---	---	.0	2.0	8.0	13.0	19.0	27.0	21.0	25.0
2	18.0	12.0	---	.0	.0	1.0	7.0	14.0	18.0	29.0	22.0	22.0
3	---	12.0	---	.0	.0	.0	8.0	16.0	18.0	30.0	21.0	22.0
4	16.0	11.0	---	.0	---	.0	7.0	14.0	20.0	29.0	19.0	29.0
5	14.0	10.0	---	.0	---	.0	6.0	15.0	22.0	24.0	19.0	28.0
6	---	---	---	.0	.0	1.0	7.0	14.0	23.0	24.0	20.0	29.0
7	11.0	---	---	.0	---	2.0	8.0	---	21.0	23.0	21.0	27.0
8	---	12.0	---	---	.0	2.0	8.0	12.0	21.0	23.0	24.0	30.0
9	12.0	---	---	---	.0	2.0	9.0	16.0	25.0	24.0	---	27.0
10	12.0	---	---	---	---	2.0	9.0	17.0	22.0	24.0	24.0	26.0
11	10.0	12.0	---	.0	.0	1.0	13.0	17.0	---	26.0	27.0	25.0
12	14.0	12.0	---	.0	---	---	9.0	16.0	24.0	24.0	28.0	25.0
13	9.0	---	---	.0	---	---	---	17.0	21.0	23.0	28.0	23.0
14	12.0	12.0	---	.0	.0	---	8.0	---	23.0	29.0	25.0	22.0
15	12.0	8.0	---	.0	---	3.0	8.0	18.0	24.0	25.0	24.0	22.0
16	14.0	---	---	.0	.0	1.0	---	18.0	25.0	---	21.0	23.0
17	12.0	---	---	.0	.0	2.0	---	18.0	24.0	28.0	26.0	19.0
18	12.0	5.0	---	.0	.0	5.0	7.0	18.0	---	28.0	22.0	19.0
19	14.0	4.0	---	---	---	---	6.0	19.0	23.0	26.0	20.0	18.0
20	15.0	---	---	.0	.0	2.0	8.0	19.0	21.0	25.0	23.0	17.0
21	12.0	---	---	.0	.0	3.0	8.0	18.0	19.0	24.0	26.0	20.0
22	10.0	4.0	.0	---	---	3.0	7.0	21.0	21.0	21.0	26.0	14.0
23	---	---	.0	.0	.0	3.0	---	20.0	21.0	23.0	28.0	17.0
24	8.0	---	---	.0	1.0	2.0	7.0	19.0	22.0	25.0	28.0	18.0
25	9.0	---	---	---	1.0	1.5	10.0	19.0	---	27.0	27.0	19.0
26	13.0	---	---	---	---	3.0	12.0	23.0	21.0	27.0	26.0	---
27	16.0	---	---	---	1.0	4.0	13.0	22.0	24.0	24.0	23.0	19.0
28	12.0	---	3.0	---	---	6.0	12.0	23.0	24.0	23.0	24.0	20.0
29	14.0	---	3.0	---	---	6.0	12.0	22.0	28.0	22.0	22.0	18.0
30	---	---	3.0	---	---	7.0	13.0	19.0	29.0	22.0	23.0	17.0
31	12.0	---	---	---	---	8.0	---	19.0	---	24.0	25.0	---
MEAN	12.5	9.5	2.0	.0	.0	2.5	9.0	18.0	22.5	25.0	24.0	22.0

< Less than.

06481500 SKUNK CREEK AT SIOUX FALLS, SD

LOCATION.--Lat 43°32'01", long 96°47'26", in NW¼SW¼ sec.24, T.101 N., R.50 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 5 ft (2 m) downstream from bridge on Marion Road, 1.3 mi (2.1 km) upstream from mouth, 1.8 mi (2.9 km) downstream from small right-bank tributary, and 4.0 mi (6.4 km) southwest of Sioux Falls.

DRAINAGE AREA.--570 mi^2 (1,480 km^2), approximately.

PERIOD OF RECORD.--May 1948 to September 1971 (published as "near Sioux Falls"). October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,405.10 ft (428.274 m) National Geodetic Vertical Datum of 1929 (Corps of Engineers bench mark). Prior to Oct. 24, 1949, nonrecording gage, and Oct. 24, 1949, to Apr. 28, 1972, water-stage recorder, both at site 1.9 mi (3.1 km) upstream at datum 10.19 ft (3.106 m) higher.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--30 years, 45.0 ft^3/s (1.274 m^3/s), 32,600 acre-ft/yr (40.2 hm^3/yr); median of yearly mean discharges, 23 ft^3/s (0.65 m^3/s), 16,700 acre-ft/yr (21 hm^3/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,400 ft^3/s (833 m^3/s) June 17, 1957, gage height, 17.78 ft (5.419 m), site and datum then in use, from rating curve extended above 8,100 ft^3/s (229 m^3/s) on basis of slope-area measurement of peak flow; no flow at times in many years.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft^3/s (14.2 m^3/s) and maximum (*):

Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft^3/s)	Discharge (m^3/s)	Gage height (ft)	Gage height (m)
Mar. 19	unknown	*2700	76.5	*a10.02	3.054	Mar. 22	0100	2230	63.2	8.91	2.716

a Ice jam.
Minimum daily discharge, 0.30 ft^3/s (0.008 m^3/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	3.6	10	3.4	.32	1.7	128	78	95	13	20	7.7
2	17	3.6	9.7	3.0	.30	1.6	177	70	92	12	34	6.5
3	9.5	3.5	9.3	2.8	.38	1.5	303	65	71	11	35	5.8
4	7.5	3.3	8.7	2.9	.45	1.4	184	62	53	10	26	5.4
5	5.3	3.3	8.0	3.0	.55	1.3	139	54	42	9.2	26	5.0
6	4.0	3.6	6.8	2.6	.70	1.4	182	51	35	10	21	4.5
7	7.8	3.4	5.7	2.6	.90	1.5	60	53	31	12	17	4.0
8	12	4.1	5.3	2.7	1.1	1.6	38	96	28	13	15	3.7
9	14	7.6	5.0	2.5	1.1	1.7	34	133	26	44	16	3.4
10	11	3.6	4.3	2.7	1.2	1.9	31	116	23	44	18	3.2
11	10	1.8	4.2	2.6	1.3	2.5	28	83	22	39	17	3.4
12	8.6	2.4	4.2	2.1	1.4	4.5	26	66	20	30	15	5.0
13	7.4	8.2	4.5	1.9	1.5	7.0	24	61	17	25	13	6.5
14	6.4	7.9	4.7	1.8	1.6	12	23	57	17	20	12	7.3
15	6.0	7.9	4.9	1.7	1.5	20	21	53	17	16	14	6.6
16	5.3	9.3	5.2	1.7	1.4	70	20	47	16	14	16	6.2
17	5.0	10	8.5	1.8	1.3	240	45	41	14	12	16	5.3
18	4.5	9.3	7.7	1.8	1.2	1000	120	37	14	11	16	7.0
19	4.1	8.8	7.7	1.7	1.1	2200	300	36	13	10	15	17
20	3.8	12	6.4	1.6	1.0	1940	250	33	12	9.4	14	16
21	3.4	13	5.6	1.6	1.1	1670	200	31	12	14	12	13
22	3.2	13	5.0	1.5	1.2	1860	170	29	20	40	10	10
23	3.4	13	4.8	1.4	1.4	938	150	28	33	136	9.3	8.4
24	3.2	12	4.2	1.4	1.6	594	180	27	46	136	8.8	7.6
25	3.3	11	4.4	1.6	1.8	438	210	26	46	86	8.5	6.8
26	3.2	10	4.1	1.9	2.0	367	170	25	64	62	10	6.0
27	3.2	11	4.1	1.3	1.9	352	130	45	42	44	13	5.3
28	2.9	9.3	3.9	.45	1.8	303	110	70	24	34	14	4.8
29	2.9	9.3	4.1	.40	---	218	95	95	17	28	12	4.6
30	3.2	9.6	4.3	.37	---	174	85	90	14	24	10	4.5
31	3.7	---	3.9	.33	---	162	---	85	---	20	8.9	---
TOTAL	219.8	228.4	179.2	59.15	33.10	12587.6	3633	1843	976	988.6	492.5	200.5
MEAN	7.09	7.61	5.78	1.91	1.18	406	121	59.5	32.5	31.9	15.9	6.68
MAX	35	13	10	3.4	2.0	2200	303	133	95	136	35	17
MIN	2.9	1.8	3.9	.33	.30	1.3	20	25	12	9.2	8.5	3.2
AC-FT	436	453	355	117	66	24970	7210	3660	1940	1960	977	398

CAL YR 1977 TOTAL 1448.61 MEAN 3.97 MAX 120 MIN .00 AC-FT 2870
WTR YR 1978 TOTAL 21440.85 MEAN 58.7 MAX 2200 MIN .30 AC-FT 42530

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD

LOCATION.--Lat 43°34'01", long 96°42'39", in SW¼NW¼ sec.10, T.101 N., R.49 W., Minnehaha County, Hydrologic Unit 10170203, on right bank 20 ft (6 m) downstream from bridge on North Cliff Avenue and 4.1 mi (6.6 km) upstream from Slip Up Creek.

DRAINAGE AREA.--5,770 mi² (14,940 km²), approximately, of which about 1,970 mi² (5,100 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1962 to September 1971 (gage heights and discharge measurements only in files of Corps of Engineers). October 1971 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,294.18 ft (394.466 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Dec. 15, 1971, nonrecording gage 20 ft (6 m) upstream at same datum.

REMARKS.--Records good. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--7 years, 274 ft³/s (7.760 m³/s), 198,500 acre-ft/yr (245 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,020 ft³/s (170 m³/s) Mar. 24, 1978, gage height, 17.54 ft (5.346 m); maximum gage height, 17.62 ft (5.371 m) Mar. 22, 1978; minimum daily discharge, 2.1 ft³/s (0.059 m³/s) Jan. 14, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Apr. 10, 1969, reached a stage of 27.45 ft (8.367 m), discharge, 40,700 ft³/s (1,150 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 1,000 ft³/s (28.3 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1945	unknown		*17.62	5.371
Mar. 24	1445	*6,020	170	17.54	5.346
Apr. 2	1015	5,310	150	16.89	5.148
Apr. 19	0215	1,870	53.0	11.39	3.472
May 12	2100	1,220	34.6	9.46	2.883

Minimum daily discharge, 30 ft³/s (0.850 m³/s) Mar. 5.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	163	96	194	69	40	36	4820	1260	769	205	235	94
2	101	95	187	73	39	37	5140	1160	788	207	413	99
3	78	91	175	76	40	35	4970	1080	856	203	305	116
4	81	87	172	77	39	31	4570	1000	900	193	187	133
5	81	94	159	75	37	30	4540	941	886	195	166	119
6	75	90	143	75	39	32	4530	875	797	225	157	129
7	237	88	134	73	40	32	4080	915	696	321	151	123
8	153	86	133	60	40	31	3360	928	605	236	146	122
9	110	85	139	60	40	35	2830	954	538	209	134	106
10	111	84	115	58	40	38	2450	1010	477	221	131	99
11	102	86	108	58	37	39	2170	1120	440	225	128	119
12	94	90	113	58	35	56	1970	1170	405	232	122	156
13	98	110	109	58	38	89	1750	1160	377	217	116	156
14	104	135	106	57	38	106	1560	1120	389	216	130	126
15	103	160	107	53	38	204	1410	1060	353	194	165	108
16	98	147	108	51	38	415	1270	968	337	181	130	107
17	105	142	164	52	37	517	1360	878	317	177	131	108
18	102	151	155	51	36	940	1690	802	300	174	128	130
19	94	177	144	50	33	1500	1800	754	310	167	121	121
20	96	174	128	49	34	2500	1580	686	301	169	117	115
21	96	80	127	47	35	3890	1540	641	291	322	119	108
22	88	159	129	45	36	5000	1510	607	415	484	107	106
23	93	174	124	48	37	5070	1470	570	355	350	110	101
24	92	156	120	48	39	5550	1460	538	299	319	108	98
25	93	160	105	46	36	5110	1440	529	326	280	106	99
26	92	176	103	44	34	4770	1430	502	294	287	126	106
27	85	188	98	41	37	4590	1470	548	284	243	107	101
28	85	196	97	40	37	4090	1470	534	248	220	107	90
29	87	199	93	37	---	3440	1440	557	229	205	102	90
30	103	200	87	40	---	3300	1360	606	210	218	99	89
31	115	---	84	40	---	4070	---	736	---	208	96	---
TOTAL	3215	3956	3960	1709	1049	55583	72440	26209	13792	7303	4500	3374
MEAN	104	132	128	55.1	37.5	1793	2415	845	460	236	145	112
MAX	237	200	194	77	40	5550	5140	1260	900	484	413	156
MIN	75	80	84	37	33	30	1270	502	210	167	96	89
AC-FT	6380	7850	7850	3390	2080	110200	143700	51990	27360	14490	8930	6690

CAL YR 1977 TOTAL 47997 MEAN 131 MAX 2210 MIN 11 AC-FT 95200
WTR YR 1978 TOTAL 197090 MEAN 540 MAX 5550 MIN 30 AC-FT 390900

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water year 1973 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) (00340)	COLI-FORM, TOTAL, IMMED. (COLS. PER 100 ML) (31501)	COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) (31616)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT											
11...	1400	114	1200	7.7	9.5	10	11.8	33	--	--	686
21...	1230	103	1190	7.8	12.5	15	10.6	38	15000	2100	713
NOV											
01...	1415	102	1220	7.7	13.0	20	10.2	43	35000	640	766
DEC											
07...	1555	142	890	8.0	1.5	6	12.7	41	26000	820	978
22...	1525	134	1350	8.1	2.0	9	11.8	52	2700	760	831
JAN											
05...	1500	79	1700	7.4	3.0	4	12.3	44	K100	ND	997
23...	1530	53	1710	7.4	4.0	5	11.9	54	ND	ND	1120
FEB											
06...	1530	43	1100	7.4	3.0	4	--	55	ND	ND	1110
14...	1450	40	2100	7.3	5.5	4	13.6	6	160	50	1230
MAR											
03...	1510	38	2160	7.4	6.5	4	13.1	30	80	ND	1320
APR											
11...	1130	2180	590	8.0	8.0	25	10.6	26	--	--	352
24...	1505	1470	1060	8.2	7.5	8	11.5	40	--	--	645
MAY											
09...	1650	966	1240	7.9	13.0	5	11.2	41	200	70	704
25...	1215	527	1030	8.0	21.5	5	9.5	63	1050	160	663
JUN											
02...	1320	792	1100	8.0	17.5	6	9.8	35	--	--	673
22...	1400	623	930	7.8	20.0	35	8.2	47	620	150	547
JUL											
13...	0915	219	1080	7.9	23.0	20	8.6	38	600	330	688
27...	1140	245	880	8.8	25.0	25	--	38	--	--	--
AUG											
23...	1500	115	1580	7.5	27.0	10	8.0	58	16000	13100	931
SEP											
07...	1415	127	1200	7.8	27.0	15	8.3	40	23600	11800	751
26...	1400	115	1300	7.6	20.5	4	--	80	42000	K6000	790

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	COPPER, TOTAL RECOV-ERABLE (UG/L AS CU) (01042)	IRON, TOTAL RECOV-ERABLE (UG/L AS FE) (01045)	LEAD, TOTAL RECOV-ERABLE (UG/L AS PB) (01051)	MANGA-NESE, TOTAL RECOV-ERABLE (UG/L AS MN) (01055)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	SELE-NIUM, TOTAL (UG/L AS SE) (01147)	ZINC, TOTAL RECOV-ERABLE (UG/L AS ZN) (01092)
OCT									
21...	1230	2	<10	920	<100	380	.0	0	20
DEC									
22...	1525	2	4	430	4	290	.0	2	20
JAN									
23...	1530	2	6	260	6	380	.0	3	30
FEB									
14...	1450	1	2	190	76	430	.1	2	30
APR									
24...	1505	2	6	650	20	220	.0	2	30
MAY									
25...	1215	--	8	440	7	260	--	--	20
JUN									
22...	1400	4	13	3600	85	560	.1	1	70
JUL									
27...	1140	5	5	1300	8	470	.0	1	20
AUG									
23...	1500	2	8	640	24	400	.0	1	20
SEP									
26...	1400	3	6	810	10	350	.0	1	30

< Less than.
K Non-ideal colony count.
ND Not detected.

06482020 BIG SIOUX RIVER AT NORTH CLIFF AVENUE, AT SIOUX FALLS, SD--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	SOLIDS, SUSP. TOTAL, RESIDUE AT 110 DEG. C (MG/L) (70299)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)
OCT											
11...	.93	211	20	1.4	3.2	1.7	4.9	6.3	28	11	7.1
21...	.97	198	39	.59	3.4	1.1	4.5	5.1	23	6.0	7.2
NOV											
01...	1.04	211	34	1.1	4.0	.70	4.7	5.8	26	20	7.3
DEC											
07...	1.33	375	13	.89	3.8	1.0	4.8	5.7	25	3.2	8.8
22...	1.13	301	16	1.3	4.9	1.4	6.3	7.6	34	11	8.3
JAN											
05...	1.36	213	8	1.2	7.0	.70	7.7	8.9	39	3.2	5.1
23...	1.52	160	41	2.7	10	.00	10	13	56	4.4	11
FEB											
06...	1.51	129	13	.59	10	4.0	14	15	65	5.4	--
14...	1.67	133	12	.66	8.8	2.2	11	12	52	7.1	2.9
MAR											
03...	1.80	135	8	.56	17	.00	15	16	69	8.1	16
APR											
11...	.48	2070	82	.73	.55	1.3	1.8	2.5	11	.40	10
24...	.88	2560	38	.33	1.3	5.5	6.8	7.1	32	1.6	15
MAY											
09...	.96	1840	21	.66	3.2	2.3	5.5	6.2	27	2.2	13
25...	.90	943	19	.15	1.5	1.8	3.3	3.5	15	1.2	12
JUN											
02...	.92	1440	36	.51	2.4	1.2	3.6	4.1	18	1.1	12
22...	.74	920	96	1.1	.23	4.0	4.2	5.3	23	2.3	10
JUL											
13...	.94	407	37	1.7	.18	2.6	2.8	4.5	20	5.9	13
27...	--	--	73	.45	.02	1.9	1.9	2.4	10	.62	1.2
AUG											
23...	1.27	289	43	2.5	4.4	1.5	5.9	8.4	37	3.5	13
SEP											
07...	1.02	258 255	53	1.2	2.3	2.1	4.4	5.6	25	2.8	13
26...	1.07	245	36	1.2	3.3	1.9	5.2	6.4	28	4.5	14

DATE	TIME	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)
OCT								
21...	1230	380	180	89	38	93	34	2.1
JAN								
05...	1500	530	240	130	51	130	34	2.4
APR								
11...	1130	260	100	66	24	20	14	.5
JUL								
13...	0915	400	190	95	40	77	29	1.7

DATE	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)
OCT								
21...	10	240	0	200	210	130	12	700
JAN								
05...	11	360	0	300	310	160	23	992
APR								
11...	8.1	200	0	160	100	24	16	357
JUL								
13...	9.9	260	0	210	220	100	12	682

06482610 SPLIT ROCK CREEK AT CORSON, SD

LOCATION.--Lat 43°36'59", long 96°33'54", in NE¼NW¼ sec.26, T.102 N., R.48 W., Minnehaha County, Hydrologic Unit 10170203, on left bank 6 ft (2 m) downstream from highway bridge, 0.3 mi (0.5 km) east of Corson and 3.4 mi (5.5 km) upstream from mouth.

DRAINAGE AREA.--475 mi² (1,230 km²), approximately.

PERIOD OF RECORD.--October 1965 to current year. February 1951 to September 1965 (gage heights and discharge measurements only in files of Corps of Engineers).

GAGE.--Water-stage recorder. Datum of gage is 1,304.22 ft (397.526 m) National Geodetic Vertical Datum of 1929 (levels by Corps of Engineers). Prior to Aug. 15, 1964, nonrecording gage at datum 0.15 ft (0.046 m) higher and Aug. 15, 1964, to Sept. 3, 1970, nonrecording gage at present site and datum.

REMARKS.--Records good except those for winter periods, which are poor. Several observations of water temperature and specific conductance were made during the year.

AVERAGE DISCHARGE.--13 years, 56.2 ft³/s (1.592 m³/s), 40,720 acre-ft/yr (50.2 hm³/yr); median of yearly mean discharges, 40 ft³/s (1.13 m³/s), 29,000 acre-ft/yr (36 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,800 ft³/s (504 m³/s) Apr. 8, 1969, gage height, 15.00 ft (4.572 m); no flow at times most years.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1951, 15.41 ft (4.697 m) June 17, 1957, discharge, 19,300 ft³/s (547 m³/s).

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 500 ft³/s (14 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)	Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 18	2000	ice jam		*8.96	2.731	Apr. 18	2300	674	19.1	4.78	1.457
Mar. 21	1915	*3250	92.0	8.57	2.612	May 29	0745	666	18.9	4.83	1.472

Minimum daily discharge, 1.1 ft³/s (0.031 m³/s) Feb. 2.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978 MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	235	34	53	26	1.4	4.4	184	122	266	19	29	9.6
2	139	33	50	23	1.1	4.3	220	109	240	19	138	8.8
3	85	29	45	20	1.2	4.1	375	99	178	17	40	9.1
4	56	25	42	22	1.2	4.0	316	91	139	16	27	8.8
5	40	23	34	24	1.3	3.8	286	84	117	17	21	8.4
6	33	23	32	23	1.3	4.8	300	79	94	19	19	7.9
7	100	23	30	19	1.4	6.0	292	83	79	44	17	7.7
8	171	24	29	15	1.5	8.0	244	121	63	113	16	7.5
9	136	64	27	11	1.5	10	218	136	56	135	15	7.1
10	94	38	26	8.0	1.6	13	231	121	47	86	14	7.0
11	79	32	25	9.0	1.7	22	223	108	41	72	13	6.7
12	72	24	24	8.8	1.8	38	197	100	36	53	12	15
13	63	45	25	8.3	1.9	70	168	96	34	48	11	21
14	57	52	27	7.7	2.0	120	140	88	31	40	10	27
15	49	53	29	7.0	2.1	200	117	77	30	31	14	23
16	44	64	36	6.0	2.0	330	104	70	27	26	16	20
17	39	80	50	5.4	1.8	600	120	63	25	23	19	17
18	35	84	48	4.7	1.7	1500	440	58	23	21	17	20
19	32	74	45	4.2	1.6	3000	602	56	28	19	15	26
20	30	80	42	3.7	1.8	2700	382	51	83	18	14	27
21	27	105	39	3.3	2.0	2530	289	47	30	25	13	24
22	26	109	37	3.0	2.4	2230	235	44	123	51	12	20
23	25	89	34	3.2	2.9	1490	220	40	106	70	12	18
24	29	69	31	3.4	3.5	959	344	38	64	65	12	17
25	30	61	29	3.6	4.2	601	362	35	48	56	11	17
26	28	64	27	3.8	5.0	415	274	32	35	88	14	16
27	26	67	26	3.6	4.8	340	217	74	29	94	15	16
28	24	62	25	2.9	4.6	319	179	155	25	70	13	15
29	23	58	24	2.4	---	286	153	366	23	53	11	14
30	23	53	26	2.0	---	244	138	343	21	39	11	13
31	30	---	30	1.7	---	213	---	242	---	31	10	---
TOTAL	1880	1641	1047	288.7	61.3	18269.4	7570	3228	2141	1478	611	454.6
MEAN	60.6	54.7	33.8	9.31	2.19	589	252	104	71.4	47.7	19.7	15.2
MAX	235	109	53	26	5.0	3000	602	366	266	135	138	27
MIN	23	23	24	1.7	1.1	3.8	104	32	21	16	10	6.7
AC-FT	3730	3250	2080	573	122	36240	15020	6400	4250	2930	1210	902

CAL YR 1977 TOTAL 13891.44 MEAN 38.1 MAX 1250 MIN .00 AC-FT 27550
WTR YR 1978 TOTAL 38670.00 MEAN 106 MAX 3000 MIN 1.1 AC-FT 76700

06485500 BIG SIOUX RIVER AT AKRON, IA

LOCATION.--Lat 42°49'42", long 96°33'45", in NW¼SW¼ sec.31, T.93 N., R.48 W., Plymouth County, Hydrologic Unit 10170203, on left bank at west edge of Akron, 0.6 mi (1.0 km) downstream from bridge on State Highway 48, and 2.3 mi (3.7 km) upstream from Union Creek.

DRAINAGE AREA.--9,030 mi² (23,390 km²), approximately, of which about 1,970 mi² (5,100 km²) is probably noncontributing.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1928 to current year.

REVISED RECORDS.--WSP 1309: 1929(M), 1931-33(M), 1936(M), 1938(M), 1940(M). WSP 1389: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,118.90 ft (341.041 m) National Geodetic Vertical Datum of 1929. Prior to Dec. 3, 1934, nonrecording gage at bridge 300 ft (91 m) upstream at same datum.

REMARKS.--Records good except those for the winter months, which are poor. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--50 years, 833 ft³/s (23.59 m³/s), 603,500 acre-ft/yr (744 hm³/yr); median of yearly mean discharges, 720 ft³/s (20.4 m³/s), 522,000 acre-ft/yr (640 hm³/yr).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 80,800 ft³/s (2,290 m³/s) Apr. 9, 1969, gage height, 22.99 ft (7.007 m); minimum daily, 4.0 ft³/s (0.11 m³/s) Jan. 17, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges above base of 3,500 ft³/s (99.1 m³/s) and maximum (*):

Date	Time	Discharge (ft³/s)	Discharge (m³/s)	Gage height (ft)	Gage height (m)
Mar. 22	1900	*18200	515	*19.88	6.059
Apr. 9	0530	6890	195	15.88	4.840
Apr. 21	0915	5280	150	14.11	4.301

Minimum daily discharge, 113 ft³/s (3.20 m³/s) Mar. 5, 6.

DISCHARGE, IN CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	224	408	1130	520	176	127	4950	2740	2290	799	1070	383
2	372	437	1080	500	174	122	4880	2570	2120	698	1410	351
3	1770	524	1010	470	172	117	5180	2400	2100	617	1100	330
4	2920	597	950	450	170	115	5610	2230	1990	568	1210	309
5	2080	572	880	430	170	113	6160	2080	1850	562	1220	296
6	1370	518	820	410	169	113	6340	1950	1770	2090	993	302
7	1090	476	760	390	168	115	6070	1880	1670	1140	839	318
8	962	452	700	370	167	118	6400	1800	1530	1170	744	313
9	902	539	640	350	166	120	6770	1810	1370	1500	685	294
10	1220	551	600	335	164	123	6010	1900	1230	1910	622	288
11	1820	576	580	320	162	127	5170	1990	1140	1870	573	277
12	1670	533	600	310	160	130	4590	1980	1050	1430	527	284
13	1300	646	650	290	158	190	4110	1980	978	1150	488	310
14	1120	1000	690	280	156	350	3600	1970	913	1010	461	333
15	1010	1180	710	270	154	900	3180	1930	891	885	506	369
16	911	1240	720	260	152	2500	2820	1850	870	778	506	401
17	825	1400	740	250	150	4000	2620	1750	832	699	512	396
18	751	1620	750	240	150	5900	2600	1630	776	632	509	362
19	683	1680	730	230	148	7500	3300	1520	731	576	461	352
20	631	1560	720	220	147	11600	4640	1420	695	533	443	338
21	586	1350	700	210	146	14200	5180	1320	1050	912	425	348
22	537	1150	680	205	145	17600	4280	1230	1260	2560	398	335
23	500	1000	670	200	143	17500	3590	1160	1230	3040	380	322
24	476	900	660	195	141	14300	3320	1120	1110	2900	368	309
25	449	940	650	190	140	11600	3290	1080	1230	2980	347	295
26	430	980	630	187	138	9530	3560	1050	1490	2540	414	281
27	419	1030	615	183	134	8410	3480	1020	1340	2030	519	275
28	403	1100	600	182	130	7360	3180	1010	1120	1740	514	264
29	392	1150	580	180	---	6570	3000	1120	1040	1560	544	266
30	378	1200	560	178	---	6050	2860	1580	929	1340	476	264
31	384	---	540	177	---	5530	---	2370	---	1150	420	---
TOTAL	28585	27309	22345	8982	4350	153030	130740	53440	38595	43369	19684	9565
MEAN	922	910	721	290	155	4936	4358	1724	1287	1399	635	319
MAX	2920	1680	1130	520	176	17600	6770	2740	2290	3040	1410	401
MIN	224	408	540	177	130	113	2600	1010	695	533	347	264
AC-FT	56700	54170	44320	17820	8630	303500	259300	106000	76550	86020	39040	18970

CAL YR 1977 TOTAL 158707.8 MEAN 435 MAX 4940 MIN 4.0 AC-FT 314800
WTR YR 1978 TOTAL 539994.0 MEAN 1479 MAX 17600 MIN 113 AC-FT 1071000

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued
(National stream-quality accounting network station)
(National pesticide water-monitoring network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1967 to current year.

PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: October 1974 to current year.
WATER TEMPERATURES: October 1974 to current year.

EXTREMES FOR PERIOD OF DAILY RECORD.--
SPECIFIC CONDUCTANCE: Maximum daily, 2,310 micromhos Jan. 20, 1977; minimum daily, 300 micromhos Feb. 17, 1976.
WATER TEMPERATURES: Maximum daily, 31.0°C Feb. 19, 1975, July 23, 1976; minimum daily, 0.0°C on many days during winter periods.

EXTREMES FOR CURRENT YEAR.--
SPECIFIC CONDUCTANCE: Maximum daily, 1,400 micromhos Dec. 12; minimum daily, 260 micromhos Mar. 20, 23.
WATER TEMPERATURES: Maximum daily, 28.0 July 17; minimum daily, 0.0°C on many days during winter period.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	TUR-BID-ITY (JTU) (00070)	TUR-BID-ITY (NTU) (00076)	OXYGEN, DIS-SOLVED (MG/L) (00300)	COLI-FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) (31625)	STREP-TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) (31673)	HARD-NESS (MG/L AS CACO3) (00900)
OCT 25...	1120	450	680	8.0	9.0	20	--	12.0	310	275	460
NOV 28...	1030	1100	860	7.8	.0	4	--	13.5	190	620	540
DEC 27...	1210	617	780	7.1	.0	15	--	6.3	--	--	350
JAN 27...	1130	183	1040	7.2	.0	4	--	--	600	253	490
FEB 28...	1130	130	1260	7.2	.0	3	--	2.8	840	380	510
APR 03...	1230	5200	360	7.2	8.0	100	--	9.9	--	--	180
26...	1315	3580	760	8.1	9.0	40	--	10.8	--	--	420
MAY 26...	1115	1060	860	8.1	22.0	--	24	12.8	--	--	430
JUN 22...	1015	1230	580	8.0	20.5	--	460	5.9	230	115	280
JUL 12...	1015	1480	680	7.7	23.5	--	120	6.9	195	135	330
AUG 24...	0930	365	650	8.1	26.0	--	31	8.0	130	220	310
SEP 26...	0845	283	760	8.0	17.0	--	35	--	200	350	310

DATE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
OCT 25...	190	110	44	38	15	.8	6.5	330	0	270
NOV 28...	210	130	52	28	10	.5	6.8	400	0	330
DEC 27...	170	86	32	31	16	.7	12	220	0	180
JAN 27...	190	120	47	52	18	1.0	6.9	370	0	300
FEB 28...	210	130	45	65	21	1.3	6.5	360	0	300
APR 03...	54	48	14	7.2	8	.2	7.3	150	0	120
26...	160	98	42	19	9	.4	6.6	310	0	250
MAY 26...	170	100	44	34	14	.7	6.3	--	--	260
JUN 22...	120	66	27	18	12	.5	7.0	--	--	160
JUL 12...	140	80	32	18	10	.4	6.5	--	--	190
AUG 24...	180	60	40	36	20	.9	6.6	--	--	130
SEP 26...	150	65	37	42	22	1.0	5.8	--	--	160

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)
OCT										
25...	180	51	.5	15	621	608	.84	755	3.3	--
NOV										
28...	200	38	.6	19	709	672	.96	2110	8.5	--
DEC										
27...	130	46	.2	12	523	458	.71	871	--	--
JAN										
27...	210	60	.4	22	732	701	1.00	362	3.2	1.9
FEB										
28...	180	85	.2	7.1	755	696	1.03	265	3.1	2.1
APR										
03...	51	9.3	.1	11	230	222	.31	3230	.80	2.1
26...	140	22	.3	12	547	493	.74	5290	3.2	1.3
MAY										
26...	190	29	.3	3.9	563	824	.77	1610	.53	--
JUN										
22...	120	25	--	9.4	376	369	.51	1250	3.0	4.4
JUL										
12...	120	29	.4	14	431	415	.59	1720	3.3	2.5
AUG										
24...	190	50	.3	.4	513	461	.70	506	.01	3.6
SEP										
26...	190	52	.3	.1	500	488	.68	382	.01	2.6

DATE	NITRO-GEN, ORGANIC TOTAL (MG/L AS N) (00605)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC DIS. (MG/L AS N) (00623)	NITRO-GEN,NH4 + ORG. SUSP. TOTAL (MG/L AS N) (00624)	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)	NITRO-GEN, TOTAL (MG/L AS N) (00600)	NITRO-GEN, TOTAL (MG/L AS NO3) (71887)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)
OCT										
25...	--	.06	.86	--	--	--	--	--	.26	.60
NOV										
28...	--	.28	1.1	--	--	--	--	--	.33	34
DEC										
27...	--	--	--	--	--	--	--	--	--	--
JAN										
27...	.40	1.5	1.6	.30	--	--	5.1	23	.83	.81
FEB										
28...	.00	2.1	2.1	.00	--	--	5.2	23	.80	1.5
APR										
03...	1.5	.61	2.1	.00	--	--	2.9	13	.24	.26
26...	1.2	.15	.97	.33	--	--	4.5	20	.13	.29
MAY										
26...	--	.00	.44	--	--	--	--	--	.12	.30
JUN										
22...	4.4	.01	.68	3.7	--	--	7.4	33	.18	.89
JUL										
12...	2.5	.01	.74	1.8	--	--	5.8	26	.24	.62
AUG										
24...	3.6	.01	.61	3.0	--	--	3.6	16	.05	.41
SEP										
26...	2.6	.01	.53	2.1	--	--	2.6	12	.05	.60

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	CARBON, ORGANIC DISSOLVED (MG/L AS C) (00681)	CARBON, ORGANIC SUSPENDED TOTAL (MG/L AS C) (00689)	CARBON, ORGANIC TOTAL (MG/L AS C) (00680)	PHYTOPLANKTON, TOTAL (CELLS PER ML) (60050)	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M (00573)	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M (00572)	SEDIMENT, SUSPENDED (MG/L) (80154)	SEDIMENT DISCHARGE, SUSPENDED (T/DAY) (80155)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)
OCT 25...	1120	--	--	7.7	--	--	--	131	164	85
NOV 28...	1030	6.3	.6	5.6	1100	--	--	120	356	71
DEC 27...	1210	--	--	10	--	--	--	--	--	--
FEB 28...	1130	--	--	3.9	--	--	--	82	29	96
APR 03...	1230	--	--	15	--	--	--	535	7320	57
MAY 26...	1115	--	--	10	160000	--	--	137	392	89
JUN 22...	1015	--	--	49	13000	--	--	1090	3620	99
AUG 24...	0930	--	--	11	--	--	--	116	114	83
SEP 26...	0845	--	--	16	--	--	--	158	121	67

DATE	TIME	ARSENIC TOTAL (UG/L AS AS) (01002)	ARSENIC SUSPENDED TOTAL (UG/L AS AS) (01001)	ARSENIC DISSOLVED (UG/L AS AS) (01000)	CADMIUM TOTAL RECOVERABLE (UG/L AS CD) (01027)	CADMIUM SUSPENDED RECOVERABLE (UG/L AS CD) (01026)	CADMIUM DISSOLVED (UG/L AS CD) (01025)	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR) (01034)	CHROMIUM, SUSPENDED RECOV. (UG/L AS CR) (01031)	CHROMIUM, DISSOLVED (UG/L AS CR) (01030)	COBALT, TOTAL RECOVERABLE (UG/L AS CO) (01037)
NOV 28...	1030	3	0	3	0	0	0	0	0	8	0
JAN 27...	1130	3	1	2	8	6	2	10	0	10	0
APR 26...	1315	4	3	1	1	0	1	0	0	0	2
JUL 12...	1015	6	1	5	30	28	2	20	10	10	6

DATE	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO) (01036)	COBALT, DISSOLVED (UG/L AS CO) (01035)	COPPER, TOTAL RECOVERABLE (UG/L AS CU) (01042)	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU) (01041)	COPPER, DISSOLVED (UG/L AS CU) (01040)	IRON, TOTAL RECOVERABLE (UG/L AS FE) (01045)	IRON, DISSOLVED (UG/L AS FE) (01046)	LEAD, TOTAL RECOVERABLE (UG/L AS PB) (01051)	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB) (01050)	LEAD, DISSOLVED (UG/L AS PB) (01049)	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN) (01055)
NOV 28...	0	0	6	4	2	260	30	7	6	1	20
JAN 27...	0	0	6	4	2	300	20	310	310	2	200
APR 26...	0	2	4	2	2	3400	30	82	75	7	290
JUL 12...	4	2	14	11	3	8500	20	310	290	19	640

DATE	MANGANESE, SUSPENDED RECOV. (UG/L AS MN) (01054)	MANGANESE, DISSOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOVERABLE (UG/L AS HG) (71900)	MERCURY SUSPENDED RECOVERABLE (UG/L AS HG) (71895)	MERCURY DISSOLVED (UG/L AS HG) (71890)	SELENIUM, TOTAL (UG/L AS SE) (01147)	SELENIUM, SUSPENDED TOTAL (UG/L AS SE) (01146)	SELENIUM, DISSOLVED (UG/L AS SE) (01145)	ZINC, TOTAL RECOVERABLE (UG/L AS ZN) (01092)	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN) (01091)	ZINC, DISSOLVED (UG/L AS ZN) (01090)
NOV 28...	10	10	.1	.1	.0	9	9	0	10	0	20
JAN 27...	0	210	.0	.0	.0	3	0	3	20	0	20
APR 26...	260	30	.0	.0	.0	2	0	2	20	0	20
JUL 12...	640	0	.0	.0	.0	2	1	1	50	40	10

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	ALDRIN, TOTAL (UG/L) (39330)	ALDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39333)	CHLORDANE, TOTAL (UG/L) (39350)	CHLORDANE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39351)	DDD, TOTAL (UG/L) (39360)	DDD, TOTAL IN BOTTOM MATERIAL (UG/KG) (39363)	DDE, TOTAL (UG/L) (39365)	DDE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39368)	DDT, TOTAL (UG/L) (39370)
NOV										
28...	1030	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN										
27...	1130	ND	--	ND	--	ND	--	ND	--	ND
APR										
26...	1315	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	DDT, TOTAL IN BOTTOM MATERIAL (UG/KG) (39373)	DIAZINON, TOTAL (UG/L) (39570)	DIAZINON, TOTAL IN BOTTOM MATERIAL (UG/KG) (39571)	DIELDRIN TOTAL (UG/L) (39380)	DIELDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39383)	ENDRIN, TOTAL (UG/L) (39390)	ENDRIN, TOTAL IN BOTTOM MATERIAL (UG/KG) (39393)	ETHION, TOTAL (UG/L) (39398)	ETHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39399)	HEPTACHLOR, TOTAL (UG/L) (39410)
NOV										
28...	ND	ND	ND	ND	3.0	ND	ND	ND	ND	ND
JAN										
27...	--	ND	--	ND	--	ND	--	ND	--	ND
APR										
26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	HEPTACHLOR, TOTAL IN BOTTOM MATERIAL (UG/KG) (39413)	HEPTACHLOR EPOXIDE TOTAL (UG/L) (39420)	HEPTACHLOR EPOXIDE TOT. IN BOTTOM MATL. (UG/KG) (39423)	LINDANE TOTAL (UG/L) (39340)	LINDANE TOTAL IN BOTTOM MATERIAL (UG/KG) (39343)	MALATHION, TOTAL (UG/L) (39530)	MALATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39531)	METHOXYCHLOR, TOTAL (UG/L) (39480)	METHOXYCHLOR, TOT. IN BOTTOM MATL. (UG/KG) (39481)	METHYL PARATHION, TOTAL (UG/L) (39600)
NOV										
28...	ND	ND	1.1	ND	ND	ND	ND	ND	ND	ND
JAN										
27...	--	ND	--	ND	--	ND	--	ND	--	ND
APR										
26...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

DATE	METHYL PARATHION, TOT. IN BOTTOM MATL. (UG/KG) (39601)	METHYL TRITHION, TOTAL (UG/L) (39790)	METHYL TRITHION, TOT. IN BOTTOM MATL. (UG/KG) (39791)	PARATHION, TOTAL (UG/L) (39540)	PARATHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39541)	SIMAZINE TOTAL COULSON COND. (UG/L) (39025)	SIMAZINE IN BOTTOM MATERIAL (UG/KG DRY SOLIDS) (39046)	TOXAPHENE, TOTAL (UG/L) (39400)	TOXAPHENE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39403)	TOTAL TRITHION (UG/L) (39786)
NOV										
28...	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN										
27...	--	ND	--	ND	--	ND	--	ND	--	ND
APR										
26...	ND	ND	ND	ND	ND	--	--	ND	ND	ND

DATE	TRITHION, TOTAL IN BOTTOM MATERIAL (UG/KG) (39787)	ATRAZINE, TOTAL (UG/L) (39630)	ATRAZINE, TOTAL IN BOTTOM MATERIAL (UG/KG) (39631)	2,4-D, TOTAL (UG/L) (39730)	2,4-D, TOTAL IN BOTTOM MATERIAL (UG/KG) (39731)	2,4,5-T TOTAL (UG/L) (39740)	2,4,5-T TOTAL IN BOTTOM MATERIAL (UG/KG) (39741)	SILVEX, TOTAL (UG/L) (39760)	SILVEX, TOTAL IN BOTTOM MATERIAL (UG/KG) (39761)
NOV									
28...	ND	ND	ND	ND	ND	ND	ND	ND	ND
JAN									
27...	--	ND	--	ND	--	ND	--	ND	--
APR									
26...	ND	--	--	--	--	--	--	--	--

ND Not detected.

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	OXYGEN, DIS-SOLVED (MG/L) (00300)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)
SEP						
06...	0830	300	25.0	5.4	--	--
06...	1030	300	25.0	7.2	--	--
06...	1230	300	26.0	9.5	--	--
06...	1430	302	27.0	11.3	--	--
06...	1630	302	27.0	12.2	--	--
06...	1830	305	27.0	11.7	--	--
06...	2030	308	27.0	10.3	--	--
06...	2230	310	26.0	8.7	--	--
07...	0030	312	26.0	6.5	--	--
07...	0230	315	26.0	6.3	--	--
07...	0430	315	25.0	5.9	--	--
07...	0630	315	25.0	5.0	--	--
07...	0830	315	25.0	5.0	--	--
07...	0930	315	25.0	5.6	--	--

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	820	995	1160	910	1180	1210	415	860	590	870	850	930
2	730	1020	1160	1000	1180	1190	410	870	660	860	850	870
3	680	1050	1160	1070	1180	1190	405	860	740	840	850	870
4	335	1040	1180	1060	1230	1200	400	850	760	810	850	870
5	420	1030	1200	1080	1230	1100	425	860	790	830	850	890
6	525	1040	1230	1070	1200	1310	440	860	800	570	860	900
7	590	1040	1270	1000	1200	1290	455	860	780	620	840	910
8	680	1040	1300	1040	1190	1290	495	850	760	730	740	960
9	760	990	1280	1040	1240	1260	480	860	790	630	720	870
10	800	1010	1320	1100	1280	1220	510	870	800	630	730	880
11	750	985	1380	1100	1220	1230	555	880	850	620	750	870
12	670	970	1400	1140	1220	1230	610	900	770	680	750	910
13	730	985	1320	1130	1240	1220	660	900	850	740	770	930
14	790	800	1320	1160	1250	1130	685	890	820	800	850	890
15	845	860	1300	1180	1240	1000	700	910	830	830	760	1000
16	870	930	1260	1150	1200	345	715	910	830	830	780	970
17	870	985	1180	1170	1220	340	725	910	840	830	760	890
18	890	970	1120	1200	1220	330	725	900	850	810	780	910
19	900	950	800	1200	1240	280	750	900	850	800	780	900
20	900	935	495	1170	1210	260	770	900	830	780	780	910
21	935	970	555	1170	1220	275	750	910	770	750	750	960
22	905	1000	470	1200	1220	265	760	910	580	390	730	960
23	940	1010	520	1140	1210	260	800	910	680	550	780	930
24	940	1020	570	1160	1250	270	810	900	710	620	780	920
25	930	1060	605	1170	1240	290	810	890	750	620	800	900
26	940	1100	740	1210	1280	300	875	890	700	710	800	900
27	950	1070	810	1210	1280	300	860	890	650	830	780	900
28	945	1070	855	1320	1340	360	860	900	790	880	780	930
29	920	1100	900	1300	---	410	860	890	760	900	850	990
30	915	1100	940	1280	---	400	865	800	750	870	820	950
31	910	---	990	1240	---	400	---	680	---	880	880	---
MEAN	800	1000	1030	1140	1230	747	653	876	764	745	795	916

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
ONCE-DAILY

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14.0	11.0	2.0	.0	.0	1.0	9.0	11.0	17.0	27.0	22.0	20.0
2	12.0	10.0	.0	.0	.0	2.0	8.0	11.0	16.0	25.0	21.0	21.0
3	11.0	9.0	.0	.0	.0	1.0	7.0	11.0	17.0	26.0	20.0	23.0
4	12.0	9.0	.0	.0	.0	.0	8.0	13.0	18.0	26.0	19.0	24.0
5	11.0	7.0	.0	.0	.0	.0	7.0	12.0	19.0	26.0	21.0	23.0
6	10.0	9.0	.0	.0	.0	.0	8.0	12.0	20.0	20.0	22.0	24.0
7	10.0	11.0	.0	.0	.0	.0	9.0	11.0	21.0	22.0	23.0	24.0
8	8.0	11.0	.0	.0	.0	1.0	9.0	11.0	17.0	23.0	24.0	24.0
9	7.0	4.0	.0	.0	.0	.0	9.0	10.0	18.0	21.0	24.0	23.0
10	7.0	1.0	.0	.0	.0	.0	8.0	12.0	21.0	21.0	24.0	23.0
11	6.0	.0	.0	.0	.0	1.0	8.0	18.0	22.0	22.0	24.0	23.0
12	5.0	.0	.0	.0	.0	1.0	8.0	15.0	20.0	22.0	24.0	24.0
13	5.0	1.0	.0	.0	.0	2.0	8.0	14.0	21.0	24.0	25.0	23.0
14	7.0	2.0	.0	.0	.0	1.0	7.0	15.0	21.0	25.0	26.0	18.0
15	8.0	1.0	.0	.0	.0	.0	7.0	15.0	22.0	24.0	24.0	18.0
16	8.0	2.0	.0	.0	.0	.0	7.0	16.0	23.0	26.0	21.0	20.0
17	9.0	1.0	.0	.0	.0	.0	8.0	18.0	24.0	28.0	22.0	18.0
18	8.0	1.0	.0	.0	.0	.0	7.0	17.0	22.0	27.0	23.0	17.0
19	8.0	1.0	1.0	.0	.0	1.0	6.0	19.0	22.0	25.0	19.0	19.0
20	9.0	1.0	.0	.0	.0	1.0	4.0	19.0	21.0	24.0	20.0	17.0
21	12.0	.0	.0	.0	.0	1.0	3.0	17.0	20.0	23.0	21.0	14.0
22	11.0	.0	.0	.0	.0	2.0	6.0	19.0	20.0	20.0	24.0	14.0
23	8.0	.0	1.0	.0	.0	2.0	6.0	19.0	21.0	19.0	25.0	14.0
24	9.0	.0	1.0	.0	.0	2.0	7.0	19.0	21.0	21.0	25.0	17.0
25	7.0	.0	.0	.0	1.0	2.0	7.0	21.0	23.0	23.0	25.0	16.0
26	9.0	.0	.0	.0	1.0	2.0	9.0	22.0	25.0	24.0	23.0	16.0
27	10.0	.0	.0	.0	2.0	4.0	10.0	22.0	27.0	24.0	22.0	15.0
28	12.0	.0	.0	.0	1.0	5.0	13.0	21.0	25.0	24.0	21.0	15.0
29	15.0	1.0	1.0	.0	---	6.0	14.0	20.0	27.0	24.0	20.0	16.0
30	12.0	2.0	.0	.0	---	7.0	---	19.0	27.0	22.0	20.0	14.0
31	14.0	---	.0	.0	---	9.0	---	18.0	---	23.0	---	---
MEAN	9.5	3.0	.0	.0	.0	1.5	8.0	16.0	21.5	23.5	22.5	19.0

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 26.77	NOV 28.77	MAY 26.78	JUN 22.78	JUL 12.78
TIME	1050	1030	1115	1015	1015
TOTAL CELLS/ML	1100000	1100	160000	13000	8600
DIVERSITY: DIVISION	1.5	1.3	1.3	1.5	1.2
.CLASS	1.5	1.3	1.3	1.5	1.2
..ORDER	1.6	1.7	1.6	2.1	1.2
...FAMILY	2.2	2.1	2.5	2.9	2.0
....GENUS	2.7	2.3	3.0	3.7	2.4

ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	19000	2	--	-	--	-	440	3	530	6
...HYDRODICTYACEAE										
....PEDIASTRUM	*	0	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	14000	1	90	8	*	0	110	1	220	3
....MICRACTINIUM	77000	7	--	-	38000#	24	500	4	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	17000	2	50	4	4500	3	280	2	130	2
....CHODATELLA	7200	1	--	-	*	0	110	1	--	-
....CLOSTERIOPSIS	*	0	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	65000	6	--	-	4000	2	660	5	530	6
....KIRCHNERIELLA	--	-	30	3	--	-	280	2	--	-
....OOCYSTIS	*	0	40	3	--	-	440	3	44	1
....QUADRIGULA	*	0	--	-	--	-	--	-	--	-
....SELENASTRUM	7200	1	--	-	1500	1	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-
....TREUBARIA	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	19000	2	--	-	42000#	26	830	6	530	6
....SCENEDESMUS	70000	7	140	12	10000	6	2500#	19	3900#	45
....TETRALLANTOS	--	-	--	-	2000	1	--	-	--	-
....TETRASTRUM	17000	2	--	-	2000	1	220	2	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	220	2	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	99	9	--	-	330	3	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
..CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	500000#	47	620#	54	13000	8	2100#	16	2200#	25
....MELOSIRA	12000	1	--	-	--	-	--	-	--	-
....AMPHORA	*	0	--	-	--	-	--	-	--	-
...NAVICULACEAE										
....NAVICULA	--	-	--	-	--	-	770	6	88	1
...NITZSCHIACEAE										
....NITZSCHIA	12000	1	10	1	9600	6	170	1	--	-
...SURIRELLACEAE										
....CYMATOPLEURA	*	0	--	-	--	-	*	0	--	-
.CHRYSOPHYCEAE										
..CHRYSOMONADALES										
...OCHROMONADACEAE										
....OCHROMONAS	*	0	--	-	--	-	--	-	--	-
.XANTHOPHYCEAE										
..HETEROCOCCALES										
...CHLOROTHECIACEAE										
....OPHIOCYTIUM	*	0	--	-	--	-	--	-	--	-
CYANOPHYTA (BLUE-GREEN ALGAE)										
.CYANOPHYCEAE										
..CHROCCOCCALES										
...CHROCCOCCAEAE										
....AGMENELLUM	38000	4	--	-	--	-	--	-	--	-
....ANACYSTIS	180000#	17	--	-	26000#	16	550	4	88	1
..HORMOGONALES										
...OSCILLATORIACEAE										
....LYNGBYA	--	-	--	-	--	-	330	3	--	-
....OSCILLATORIA	--	-	--	-	9600	6	2000#	15	--	-

NOTE: # - DOMINANT ORGANISM: EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED: LESS THAN 1/2%

06485500 BIG SIOUX RIVER AT AKRON, IA--Continued

PHYTOPLANKTON ANALYSES

DATE	SEP 26.77		NOV 28.77		MAY 26.78		JUN 22.78		JUL 12.78	
TIME	1050		1030		1115		1015		1015	
TOTAL CELLS/ML	1100000		1100		160000		13000		8600	
DIVERSITY: DIVISION	1.5		1.3		1.3		1.5		1.2	
.CLASS	1.5		1.3		1.3		1.5		1.2	
..ORDER	1.6		1.7		1.6		2.1		1.2	
...FAMILY	2.2		2.1		2.5		2.9		2.0	
....GENUS	2.7		2.3		3.0		3.7		2.4	
ORGANISM	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT	CELLS /ML	PER- CENT
CHLOROPHYTA (GREEN ALGAE)										
.CHLOROPHYCEAE										
..CHLOROCOCCALES										
...COELASTRACEAE										
....COELASTRUM	19000	2	--	-	--	-	440	3	530	6
...HYDRODICTYACEAE										
....PEDIASTRUM	*	0	--	-	--	-	--	-	--	-
...MICRACTINIACEAE										
....GOLENKINIA	14000	1	90	8	*	0	110	1	220	3
....MICRACTINIUM	77000	7	--	-	38000#	24	500	4	--	-
...OOCYSTACEAE										
....ANKISTRODESMUS	17000	2	50	4	4500	3	280	2	130	2
....CHODATELLA	7200	1	--	-	*	0	110	1	--	-
....CLOSTERIOPSIS	*	0	--	-	--	-	--	-	--	-
....DICTYOSPHAERIUM	65000	6	--	-	4000	2	660	5	530	6
....KIRCHNERIELLA	--	-	30	3	--	-	280	2	--	-
....OOCYSTIS	*	0	40	3	--	-	440	3	44	1
....QUADRIGULA	*	0	--	-	--	-	--	-	--	-
....SELENASTRUM	7200	1	--	-	1500	1	--	-	--	-
....TETRAEDRON	*	0	--	-	--	-	--	-	--	-
....TREUBARIA	*	0	--	-	--	-	--	-	--	-
...SCENEDESMACEAE										
....ACTINASTRUM	19000	2	--	-	42000#	26	830	6	530	6
....SCENEDESMUS	70000	7	140	12	10000	6	2500#	19	3900#	45
....TETRALLANTOS	--	-	--	-	2000	1	--	-	--	-
....TETRASTRUM	17000	2	--	-	2000	1	220	2	--	-
..TETRASPORALES										
...COCCOMYXACEAE										
....ELAKATOTHRIX	--	-	--	-	--	-	220	2	--	-
..VOLVOCALES										
...CHLAMYDOMONADACEAE										
....CHLAMYDOMONAS	*	0	99	9	--	-	330	3	--	-
CHRYSOPHYTA										
.BACILLARIOPHYCEAE										
. CENTRALES										
...COSCINODISCACEAE										
....CYCLOTELLA	500000#	47	620#	54	13000	8	2100#	16	2200#	25
....MELOSIRA	12000	1	--	-	--	-	--	-	--	-
....STEPHANODISCUS	--	-	--	-	--	-	220	2	--	-
..PENNALES										
...CYMBELLACEAE										
EUGLENOPHYTA (EUGLENOIDS)										
.CRYPTOPHYCEAE										
..CRYPTOMONIDALES										
...CRYPTOMONODACEAE										
....CRYPTOMONAS	*	0	50	4	--	-	--	-	--	-
.EUGLENOPHYCEAE										
..EUGLENALES										
...EUGLENACEAE										
....EUGLENA	*	0	20	2	--	-	--	-	180	2
....TRACHELOMONAS	*	0	--	-	--	-	--	-	220	3
PYRRHOPHYTA (FIRE ALGAE)										
.DINOPHYCEAE										
..PERIDINIALES										
...PERIDINIACEAE										
....PERIDINIUM	*	0	--	-	--	-	--	-	--	-

NOTE: # - DOMINANT ORGANISM; EQUAL TO OR GREATER THAN 15%
* - OBSERVED ORGANISM, MAY NOT HAVE BEEN COUNTED; LESS THAN 1/2%

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in floodflow analyses.

Crest-stage partial-record stations

The following table contains annual maximum discharges for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain, but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained, but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

Annual maximum discharge at crest-stage partial-record stations

					Annual maximum		
Station No.	Station name	Location	Drainage area (m^2)	Period of record	Date	Gage height (feet)	Discharge (ft^3/s)
		Minnesota River basin					
05289950	Little Minnesota River tributary at Sisseton, SD	Lat 45°39'38", long 97°04'21", in NW¼ sec.32, T.126 N., R.51 W., Roberts County, Hydrologic Unit 07020001, at culvert on State Highway 10, 0.6 mile (1.0 km) west of Sisseton.	4.21	1970-78	7- 1-78	9.78	315
05290300	North Fork Whetstone River tributary near Wilmot, SD	Lat 45°26'02", long 96°57'33", in SE¼ sec.18, T.123 N., R.50 W., Roberts County, Hydrologic Unit 07020001, at culvert on county highway, 6.0 miles (9.7 km) northwest of Wilmot.	.96	1970-78	6-30-78	4.10	37
05292600	North Fork Yellow Bank River tributary near Stockholm, SD	Lat 45°06'28", long 96°49'19", in SE¼SE¼SE¼ sec.16, T.119 N., R.50 W., Grant County, Hydrologic Unit 07020001, at culvert on State Highway 20, 1.0 mile (1.6 km) northwest of Stockholm.	8.15	1970-78	5-29-78	4.96	68
		Spring Creek basin					
06354845	Spring Creek tributary near Greenway, SD	Lat 45°54'45", long 99°36'48", in SW¼ sec.12, T.128 N., R.73 W., McPherson County, Hydrologic Unit 10130102, at culvert on State Highway 47, 4.8 miles (7.7 km) east of Greenway.	.99	1970-78	6-26-78	5.84	90
		Grand River basin					
06355400	North Fork Grand River tributary near Lodgepole, SD	Lat 45°55'45", long 102°39'04", in NW¼ sec.28, T.23 N., R.12 E., Perkins County, Hydrologic Unit 10130301, at culvert on county highway, 9.0 miles (14.5 km) north of Lodgepole.	3.07	1970-78	6-25-78	7.46	370
06356150	North Jack Creek near Ludlow, SD	Lat 45°47'15", long 103°23'43", in SW¼NW¼NW¼ sec.16, T.21 N., R.6 E., Harding County, Hydrologic Unit 10130302, at culvert on U.S. Highway 85, 3.4 miles (5.5 km) southwest of Ludlow.	1.69	1970-78	6-25-78	6.68	145
06356600	South Fork Grand River tributary near Bison, SD	Lat 45°35'54", long 102°39'28", in NE¼ sec.21, T.19 N., R.12 E., Perkins County, Hydrologic Unit 10130302, at culvert on county highway, 10 miles (16 km) northwest of Bison.	[a]1.0	1970-78	6-29-78	7.76	183
		Deadman Creek basin					
06358520	Deadman Creek tributary near Mobridge, SD	Lat 45°28'15", long 100°29'54", in NW¼ sec.1, T.17 N., R.29 E., Dewey County, Hydrologic Unit 10130102, at culvert on county highway, 5.5 miles (8.8 km) southwest of Mobridge.	.30	1956-78	5-11-78	5.44	20

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		Blue Blanket Creek basin					
06358540	Blue Blanket Creek tributary near Glenham, SD	Lat 45°32'12", long 100°12'01", in NW¼NW¼NW¼ sec.30, T.124 N., R.77 W., Walworth County, Hydrologic Unit 10130102, at culvert on U.S. Highway 12, 3.5 miles (5.6 km) east of Glenham.	0.62	1970-78	6-26-78	4.26	21
		Moreau River basin					
06358550	Battle Creek tributary near Castle Rock, SD	Lat 45°02'57", long 103°32'56", in NE¼ sec.31, T.13 N., R. 5 E., Butte County, Hydrologic Unit 10130304, at culvert on U.S. Highway 85, 8.7 miles (14.0 km) northwest of Castle Rock.	1.57	1969-78	7-20-78	7.21	189
06358600	South Fork Moreau River tributary near Redig, SD	Lat 45°11'55", long 103°34'05", in SE¼SE¼ sec.1, T.14 N., R.4 E., Butte County, Hydrologic Unit 10130304, at culvert on former U.S. Highway 85, 5 miles (8 km) south of Redig, 26.2 miles (42.2 km) south of Buffalo.	2.33	1956, 1958-78	6-29-78	3.35	120
06359300	Deep Creek tributary near Maurine, SD	Lat 45°01'34", long 102°32'29", in SW¼SE¼ sec.4, T.12 N., R.13 E., Meade County, Hydrologic Unit 10130305, at culvert on U.S. Highway 212, 2.6 miles (4.2 km) east of Maurine.	1.26	1970-78	4- -78	[b]9.05	[c]20
06359700	Thunder Butte Creek tributary near Meadow, SD	Lat 45°26'39", long 102°05'21", in SE¼ sec.12, T.17 N., R.16 E., Perkins County, Hydrologic Unit 10130306, at culvert on State Highway 20, 8.5 miles (13.7 km) southeast of Meadow, 15.7 miles (25.3 km) west of Glad Valley.	[a]3.0	1970-78	4- -78	[b]6.71	[c]20
06359800	Thunder Butte Creek tributary near Glad Valley, SD	Lat 45°26'39", long 102°01'01", in SW¼ sec.10, T.17 N., R.17 E., Perkins County, Hydrologic Unit 10130306, at culvert on State Highway 20, 12.2 miles (19.6 km) west of Glad Valley.	[a]8.0	1970-77[d]	--	--	--
06359850	Elm Creek tributary near Dupree, SD	Lat 45°03'12", long 101°38'39", in SW¼ sec.26, T.13 N., R.20 E., Ziebach County, Hydrologic Unit 10130306, at culvert on U.S. Highway 212, 1.8 miles (2.9 km) west of Dupree.	[a]5.0	1970-78	4- -78	[b]7.56	[c]75
06360350	Little Moreau River tributary near Firesteel, SD	Lat 45°24'16", long 101°13'30", in NE¼SE¼ sec.25, T.17 N., R.23 E., Dewey County, Hydrologic Unit 10130306, at culvert on State Highway 63, 3.5 miles (5.6 km) southeast of Firesteel.	[a]2.75	1970-78	4- -78	4.89	78
		Swan Creek basin					
06361020	Swan Lake Creek tributary near Bowdle, SD	Lat 45°26'57", long 99°44'34", in SW¼ sec.23, T.123 N., R.74 W., Walworth County, Hydrologic Unit 10130105, at culvert on U.S. Highway 12, 3.7 miles (6.0 km) west of Bowdle.	27.1	1970-78	5-12-78	5.12	91
		Cheyenne River basin					
06396200	Fiddle Creek near Edgemont, SD	Lat 43°18'16", long 103°59'46", in SE¼ sec.33, T.8 S., R. 1 E., Fall River County, Hydrologic Unit 10120106, at culvert on U.S. Highway 18 and 85A, 9 miles (14 km) west of Edgemont.	.64	1956-78	5- 4-78	2.17	18

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m^2)	Period of record	Annual maximum Date	Gage height (feet)	Dis-charge (ft^3/s)
		Cheyenne River basin - Continued					
06396300	Cottonwood Creek tributary near Edgemont, SD	Lat 43°17'48", long 103°52'02", in SW¼ sec.3, T.9 S., R.2 E., Fall River County, Hydrologic Unit 10120106, at culvert on U.S. Highway 18 and 85A, 2.5 miles (4.0 km) west of Edgemont.	0.09	1956-78	6-17-78	3.15	14
06396350	Red Canyon Creek tributary near Pringle, SD	Lat 43°32'22", long 103°39'20", in SW¼ sec.9, T.6 S., R.4 E., Custer County, Hydrologic Unit 10120109, at culvert on State Highway 89, 0.5 mile (0.8 km) northwest of Argyle, and 5.5 miles (8.8 km) southwest of Pringle.	.20	1970-78	1978	--	(e)
06399300	Hat Creek tributary near Ardmore, SD	Lat 43°05'42", long 103°40'25", in NW¼ sec.16, T.11 S., R.4 E., Fall River County, Hydrologic Unit 10120108, at culvert on State Highway 71, 5.0 miles (8.0 km) north of Ardmore.	3.74	1956-78	5- 7-78	4.46	50
06400900	Horsehead Creek tributary near Smithwick, SD	Lat 43°17'16", long 103°19'08", in NW¼ sec.8, T.9 S., R.7 E., Fall River County, Hydrologic Unit 10120106, at culvert on U.S. Highway 18 and 385, 12 miles (19 km) southeast of Hot Springs, and 5.3 miles (8.5 km) west of Smithwick.	1.52	1969-78	8-27-78	6.50	66
06402100	Fall River tributary at Hot Springs, SD	Lat 43°24'58", long 103°29'18", in NW¼NE¼ sec.26, T.7 S., R.5 E., Fall River County, Hydrologic Unit 10120109, at culvert on State Highway 71, 0.5 mile (0.8 km) south of Hot Springs.	3.81	1970-78	8-15-78	4.37	46
06403800	Battle Creek tributary near Keystone, SD	Lat 43°55'28", long 103°27'44", in NW¼NE¼NE¼ sec.36, T.1 S., R.5 E., Pennington County, Hydrologic Unit 10120109, at culvert on U.S. Highway 16, 2.8 miles (4.5 km) northwest of Keystone.	.63	1956-78	5-30-78	4.10	1.4
06406100	Battle Creek tributary near Hermosa, SD	Lat 43°50'10", long 103°09'43", in SE¼NE¼ sec.33, T.2 S., R.8 E., Custer County, Hydrologic Unit 10120109, at culvert on county highway, 1.3 miles (2.1 km) east of Hermosa.	3.49	1970-78	4- -78	[b]3.54	[c]20
06406800	Newton Fork near Hill City, SD	Lat 43°58'03", long 103°38'24", in NE¼NE¼ sec.16, T.1 S., R.4 E., Pennington County, Hydrologic Unit 10120109, at culvert on Forest Service Road 17, 3.9 miles (6.3 km) northwest of Hill City.	8.17	1969-78	5-19-78	4.16	51
06406900	Palmer Creek near Hill City, SD	Lat 43°56'12", long 103°30'36", in NE¼SE¼NW¼ sec.27, T.1 S., R.5 E., Pennington County, Hydrologic Unit 10120109, at culvert on U.S. Highway 16, 3.0 miles (4.8 km) east of Hill City.	13.3	1956-78	5-30-78	4.01	--
06408850	Silver Creek near Rochford, SD	Lat 44°07'24", long 103°41'53", in NE¼NE¼ sec.24, T.2 N., R.3 E., Pennington County, Hydrologic Unit 10120110, at culvert on Forest Service Road 291, 0.3 mile (0.5 km) upstream from mouth, and 1.1 miles (1.8 km) east of Rochford.	6.23	1969-78	5-18-78	4.24	14

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

					Annual maximum		
Station No.	Station name	Location	Drainage area (m^2)	Period of record	Date	Gage height (feet)	Discharge (ft^3/s)
		Cheyenne River basin - Continued					
06408900	Heeley Creek near Hill City, SD	Lat 43°58'57", long 103°50'02", in NW¼NW¼ sec.12, T.1 S., R.2 E., Pennington County, Hydrologic Unit 10120110, at culvert on Forest Service Road 291, 2.8 miles (4.5 km) south of Deerfield, and 13.5 miles (21.7 km) northwest of Hill City.	4.88	1969-78	5-18-78	3.74	14
06421750	Rapid Creek tributary near Farmingdale, SD	Lat 43°56'30", long 102°48'43", in SE¼SW¼ sec.21, T.1 S., R.11 E., Pennington County, Hydrologic Unit 10120110, at culvert on State Highway 40, 3.8 miles (6.1 km) southeast of Farmingdale.	1.50	1970-78	4- -78	[b]5.20	[c]10
06423400	Bull Creek tributary near Wall, SD	Lat 43°53'55", long 102°14'18", in NW¼SW¼ sec.5, T.2 S., R.16 E., Pennington County, Hydrologic Unit 10120111, at culvert on U.S. Highway 16A, 6.2 miles (10.0 km) south of Wall.	.39	1970-78	5-27-78	3.83	19
06434800	Owl Creek tributary near Belle Fourche, SD	Lat 44°49'32", long 103°51'06", in NE¼SE¼ sec.15, T.10 N., R.2 E., Butte County, Hydrologic Unit 10120202, at culvert on U.S. Highway 85, 10.2 miles (16.4 km) north of Belle Fourche.	3.06	1970-78	10- 1-77	3.17	73
06437100	Boulder Creek near Deadwood, SD	Lat 44°23'28", long 103°39'38", in NE¼SW¼ sec.17, T.5 N., R.4 E., Lawrence County, Hydrologic Unit 10120202, at culvert on U.S. Highway 14A, 3.5 miles (5.6 km) east of Deadwood.	1.32	1956-78	5-10-78	5.28	48
06439050	Cherry Creek tributary near Avance, SD	Lat 44°48'33", long 102°03'18", in SW¼ sec.21, T.10 N., R.17 E., Meade County, Hydrologic Unit 10120113, at culvert on State Highway 73, 12.5 miles (20.1 km) southeast of Avance.	.60	1956-78	3- -78	[b]8.88	[c]30
06439080	Cherry Creek tributary No. 3 near Avance, SD	Lat 44°51'03", long 102°03'36", in SW¼ sec.3, T.10 N., R.17 E., Meade County, Hydrologic Unit 10120113, at bridge on State Highway 73, 11 miles (17.7 km) southeast of Avance.	4.58	1956-78	3- -78	[b]5.47	[c]25
06439100	Beaver Creek near Faith, SD	Lat 44°56'21", long 102°02'37", in SW¼ sec.3, T.11 N., R.17 E., Meade County, Hydrologic Unit 10120113, at bridge on State Highway 73, 6 miles (10 km) south of Faith.	37.1	1956-78	6-15-76	[f]5.52	[f]72
					5-21-77	[f]4.97	[f]48
					6-30-78	6.03	102
06439400	Plum Creek tributary near Milesville, SD	Lat 44°21'34", long 101°25'42", in S½ sec.26, T.5 N., R.22 E., Haakon County, Hydrologic Unit 10120112, at culvert on State Highway 34, 14.5 miles (23.3 km) southeast of Milesville.	[a]0.5	1970-78	4-18-78	3.71	11
		Bad River basin					
06440700	Brady Creek tributary near Philip, SD	Lat 43°55'14", long 101°39'40", in NE¼NE¼ sec.36, T.1 S., R.20 E., Jackson County, Hydrologic Unit 10140102, at culvert on State Highway 73, 8.1 miles (13.0 km) south of Philip.	4.84	1970-78	1970	--	[c]25
					4-20-71	4.47	404
					7-24-72	3.55	188
					5-27-73	4.25	360
					4- -78	4.22	354
06441200	Powell Creek tributary near Fort Pierre, SD	Lat 44°22'39", long 100°35'16", in NW¼SW¼ sec.23, T.5 N., R.29 E., Stanley County, Hydrologic Unit 10140102, at culvert on U.S. Highway 14, 10.2 miles (16.4 km) west of Fort Pierre.	.40	1970-78	4- -78	5.79	92

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

					Annual maximum		
Station No.	Station name	Location	Drainage area (m^2)	Period of record	Date	Gage height (feet)	Discharge (ft^3/s)
		Hilgers Gulch basin					
06441530	Hilgers Gulch tributary near Pierre, SD	Lat 44°23'52", long 100°18'57", in SE¼SW¼SE¼ sec.22, T.111 N., R.79 W., Hughes County, Hydrologic Unit 10140101, at culvert on U.S. Highway 14 and 83, 1 mile (2 km) upstream from mouth, and 3 miles (5 km) northeast of Pierre.	1.33	1968-78	8-22-78	4.16	31
06441580	Hilgers Gulch at Pierre, SD	Lat 44°22'10", long 100°20'30", in SE¼SW¼ sec.33, T.111 N., R.79 W., Hughes County, Hydrologic Unit 10140101, on right bank at culvert on Church Street, 0.7 mile (1.1 km) upstream from mouth, in city of Pierre.	6.49	1967-78	4-17-78	[b]8.94	[c]75
		Mush Creek basin					
06441650	Mush Creek near Pierre, SD	Lat 44°20'13", long 100°12'42", in NE¼ sec.16, T.110 N., R.78 W., Hughes County, Hydrologic Unit 10140101, at bridge on State Highway 34, 7.5 miles (12.1 km) east of Pierre.	14.2	1956-78	4-17-78	--	20
		Unnamed Missouri River tributary					
06442050	Missouri River tributary near DeGrey, SD	Lat 44°17'45", long 99°58'58", in SW¼ sec.28, T.110 N., R.76 W., Hughes County, Hydrologic Unit 10140101, at culvert on State Highway 34, 3.2 miles (5.1 km) northwest of DeGrey.	1.73	1956-78	4-17-78	1.73	60
		Medicine Creek basin					
06442350	North Fork Medicine Creek near Vivian, SD	Lat 43°57'06", long 100°19'25", in SW¼ sec.28, T.106 N., R.79 W., Lyman County, Hydrologic Unit 10140104, at bridge on U.S. Highway 83, 2.5 miles (4.0 km) northwest of Vivian.	47.0	1956-78	1978	[b]7.92	[c]50
06442400	Medicine Creek tributary No. 2 near Vivian, SD	Lat 44°02'03", long 100°19'28", in NE¼ sec.32, T.107 N., R.79 W., Lyman County, Hydrologic Unit 10140104, at culvert on U.S. Highway 83, 8 miles (13 km) northwest of Vivian.	9.21	1956-78	1978	[b]5.57	[c]40
		Crow Creek basin					
06442850	Elm Creek tributary near Ree Heights, SD	Lat 44°25'05", long 99°12'17", in NW¼SW¼ sec.13, T.111 N., R.70 W., Hand County, Hydrologic Unit 10140105, at culvert on county highway, 6.5 miles (10.5 km) south of Ree Heights.	.70	1969-78	1978	[b]8.49	[c]15
06442960	Smith Creek tributary near Gann Valley, SD	Lat 44°01'34", long 98°43'41", in NE¼SE¼ sec.34, T.107 N., R.66 W., Jerauld County, Hydrologic Unit 10140105, at culvert on county highway, 8.7 miles (14.0 km) southwest of Wessington Springs and 13.9 miles (20.9 km) east of Gann Valley.	5.85	1972-78	1978	[b]7.35	[c]40
		White River basin					
06445990	South Fork Blacktail Creek tributary near Oelrichs, SD	Lat 43°11'18", long 103°08'20", in NW¼ sec.14, T.10 S., R.8 E., Fall River County, Hydrologic Unit 10140201, at culvert on U.S. Highway 18, 4.2 miles (6.8 km) east of Oelrichs.	3.60	1969-78	5-30-78	2.75	--

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		White River basin - Continued					
06446250	Porcupine Creek tributary near Rockyford, SD	Lat 43°26'05", long 102°25'45", in SE¼SE¼ sec.17, T.40 N., R.43 W., Shannon County, Hydrologic Unit 10140201, at culvert on county road, 5 miles (8 km) southeast of village of Rockyford.	1.65	1968, 1970-78	8-27-78	8.16	338
06446400	Cain Creek tributary at Imlay, SD	Lat 43°42'59", long 102°23'23", in SE¼NW¼ sec.12, T.4 S., R.14 E., Pennington County, Hydrologic Unit 10140201, at bridge on State Highway 40, 0.5 mile (0.8 km) east of Imlay.	15.8	1956-78	5- 7-78	5.70	570
06446550	White River tributary near Interior, SD	Lat 43°44'51", long 101°56'50", in SE¼ sec.27, T.3 S., R.18 E., Jackson County, Hydrologic Unit 10140202, in Badlands National Park, at culvert on U.S. Highway 16A, 2.3 miles (3.7 km) northeast of Interior.	.32	1956-78	7-22-78	7.82	450
06446800	Cottonwood Creek near Wanblee, SD	Lat 43°34'35", long 101°32'15", in NW¼NW¼ sec.31, T.42 N., R.35 W., Washabaugh County, Hydrologic Unit 10140202, at culvert on State Highway 40, 6.2 miles (10.0 km) east of Wanblee.	[a]1.7	1971-78	4-18-78	[b]7.74	[c]70
06447200	Black Pipe Creek tributary near Norris, SD	Lat 43°27'42", long 101°08'05", in NW¼NW¼ sec.8, T.40 N., R.32 W., Mellette County, Hydrologic Unit 10140202, at culvert on State Highway 63, 3.2 miles (5.1 km) east of Norris.	4.19	1971-78	5-28-78	5.34	67
06447490	Little White River tributary near Martin, SD	Lat 43°10'20", long 101°41'02", in SE¼SW¼ sec.15, T.37 N., R.37 W., Bennett County, Hydrologic Unit 10140203, at culvert on U.S. Highway 18, 2.3 miles (3.7 km) east of Martin.	[a]8.9	1971-78	3- -78	[b]8.14	[c]30
06449700	Little Oak Creek near Mission, SD	Lat 43°19'45", long 100°42'33", in NW¼ sec.25, T.39 N., R.29 W., Todd County, Hydrologic Unit 10140203, at culvert on U.S. Highway 83, 3.2 miles (5.1 km) northwest of Mission.	2.58	1956-78	4- -78	[b]4.94	[c]25
06451750	Cottonwood Creek tributary near Winner, SD	Lat 43°23'11", long 100°01'13", in NW¼ sec.24, T.99 N., R.78 W., Tripp County, Hydrologic Unit 10140204, at culvert on U.S. Highway 18, 7.5 miles (12.1 km) west of Winner.	[a]4.0	1971-78	5-27-73 4-12-74 6-21-75 4-29-78	4.18 3.70 4.22 4.34	[f]90 [f]28 [f]96 111
		Fivemile Creek basin					
06452250	Fivemile Creek tributary near Iona, SD	Lat 43°29'23", long 99°26'08", in SE¼ sec.11, T.99 N., R.73 W., Gregory County, Hydrologic Unit 10140101, at culvert on State Highway 47, 3.8 miles (6.1 km) south of Iona.	2.35	1970-78	4-29-78	3.14	55
		Choteau Creek basin					
06453150	Choteau Creek tributary near Tripp, SD	Lat 43°14'20", long 98°02'35", in NE¼NW¼ sec.10, T.97 N., R.61 W., Hutchinson County, Hydrologic Unit 10170101, at culvert on U.S. Highway 18, 3.7 miles (6.0 km) west of Tripp.	.54	1970-78	[illegible]-28-78	3.30	29

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	**Station name**	Location	Drainage area (m^2)	Period of record	Annual maximum Date	 Gage height (feet)	 Discharge (ft^3/s)
		Choteau Creek basin - Continued					
06453250	**Choteau Creek tributary near Wagner, SD**	Lat 43°04'54", long 98°19'04", in NE¼NW¼ sec.5, T.95 N., R.63 W., Charles Mix County, Hydrologic Unit 10170101, at culvert on State Highway 46, 1.1 miles (1.8 km) west of Wagner.	15.6	1970-78	5-28-78	6.23	174
		James River basin					
06471050	**Elm River tributary near Leola, SD**	Lat 45°50'40", long 98°46'03", in NE¼SE¼ sec.3, T.127 N., R.66 W., McPherson County, Hydrologic Unit 10160004, at culvert on county highway, 12.2 miles (19.6 km) northeast of Leola.	18.0	1956-78	6-30-78	3.91	46
06471400	**Willow Creek tributary near Leola, SD**	Lat 45°44'10", long 98°45'45", in SW¼ sec.11, T.126 N., R.66 W., McPherson County, Hydrologic Unit 10160004, at culvert on former State Highway 10, 8.5 miles (13.7 km) northeast of Leola.	6.69	1956-78	3-26-78	2.60	58
06471750	**Snake Creek tributary near Leola, SD**	Lat 45°41'01", long 98°55'55", in SE¼ sec.32, T.126 N., R.67 W., McPherson County, Hydrologic Unit 10160003, at culvert on State Highway 45, 2.5 miles (4.0 km) south of Leola.	4.49	1971-78[g]	3- -78	[b]5.74	[c]30
06472200	**Mud Creek tributary near Groton, SD**	Lat 45°26'37", long 98°02'22", in SW¼ sec.22, T.123 N., R.60 W., Brown County, Hydrologic Unit 10160005, at culvert on U.S. Highway 12, 3.2 miles (5.1 km) east of Groton.	56.7	1960-69, 1974-78	3-28-78	4.38	208
06472250	**Mud Creek tributary No. 2 near Groton, SD**	Lat 45°26'36", long 98°02'52", in SE¼ sec.21, T.123 N., R.60 W., Brown County, Hydrologic Unit 10160005, at culvert on U.S. Highway 12, 2.7 miles (4.3 km) east of Groton.	75.8	1960-78	3-28-78	5.40	270
06473300	**Preachers Run tributary at Ipswich, SD**	Lat 45°27'08", long 99°01'45", in SE¼ sec.21, T.123 N., R.68 W., Edmunds County, Hydrologic Unit 10160008, at culvert on county highway, 0.3 mile (0.5 km) north of U.S. Highway 12, at Ipswich.	7.88	1971-78	3-24-78	[b]7.42	[c]50
06473350	**South Fork Snake Creek tributary near Seneca SD**	Lat 45°03'00", long 99°23'36", in SE¼NE¼ sec.9, T.118 N., R.71 W., Faulk County, Hydrologic Unit 10160008, at culvert on U.S. Highway 212, 5.3 miles (8.5 km) east of Seneca.	4.54	1971-78	3- -78	[b]9.90	[c]40
06473400	**North Fork Snake Creek tributary near Wecota, SD**	Lat 45°09'26", long 99°07'26", in NE¼NE¼ sec.3, T.119 N., R.69 W., Faulk County, Hydrologic Unit 10160008, at culvert on county highway, 1.1 miles (1.8 km) south of Wecota.	2.69	1971-78	6-20-75 3- -78	4.70 [b]4.62	65 [c]50
06473820	**Shaefer Creek near Orient, SD**	Lat 44°46'46", long 99°02'39", in NW¼NW¼ sec.17, T.115 N., R.68 W., Hand County, Hydrologic Unit 10160009, on downstream side of bridge on county highway, 8.5 miles (13.7 km) southeast of Orient.	51.3	1956-78	3-28-78	3.65	380

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		James River basin - Continued					
06473850	Shaefer Creek tributary near Orient, SD	Lat 44°43'49", long 98°59'17", in SE¼NE¼ sec.34, T.115 N., R.68 W., Hand County, Hydrologic Unit 10160009, at culvert on State Highway 45, 13 miles (21 km) southeast of Orient.	5.17	1956-78	5- 7-78	3.91	55
06473880	Shaefer Creek tributary near Miller, SD	Lat 44°42'20", long 98°59'17", in NE¼ sec.10, T.114 N., R.68 W., Hand County, Hydrologic Unit 10160009, at culvert on State Highway 45, 13 miles (21 km) north of Miller.	5.95	1956-78	5- 7-78	4.70	125
06475500	Dry Run near Frankfort, SD	Lat 44°56'17", long 98°19'43", in NW¼NW¼ sec.20, T.117 N., R.62 W., Spink County, Hydrologic Unit 10160006, at highway bridge, 400 ft (120 m) downstream from small right-bank tributary, 4.4 miles (7.1 km) north of Frankfort, and 8.1 miles (13.0 km) upstream from mouth.	225	1955-69‡, 1970-78	3-29-78	8.79	700
06475550	Dry Run tributary near Frankfort, SD	Lat 44°55'45", long 98°18'31", in W½NW¼SW¼ sec.21, T.117 N., R.62 W., Spink County, Hydrologic Unit 10160006, at culvert on county highway, 0.6 mile (1.0 km) upstream from mouth, and 3.5 miles (5.6 km) north of Frankfort.	4.19	1967-78	5-28-78	8.79	138
06475850	Foster Creek tributary near Carpenter, SD	Lat 44°37'59", long 98°03'42", in SE¼SE¼ sec.32, T.114 N., R.60 W., Spink County, Hydrologic Unit 10160006, at culvert on State Highway 28, 7.3 miles (11.7 km) west of Carpenter.	4.93	1972-78	3- -78	4.47	56
06475950	Shue Creek tributary near Yale, SD	Lat 44°27'48", long 97°59'18", in NW¼SW¼ sec.36, T.112 N., R.60 W., Beadle County, Hydrologic Unit 10160006, at culvert on county highway, 2 miles (3 km) north of Yale.	6.90	1968-78	4-18-78	4.06	66
06477140	Rock Creek tributary near Roswell, SD	Lat 44°02'24", long 97°42'34", in SW¼SW¼ sec.29, T.107 N., R.57 W., Miner County, Hydrologic Unit 10160011, at culvert on county highway, 2.2 miles (3.5 km) north of Roswell.	5.67	1970-78	3- -78	4.86	110
06477150	Rock Creek near Fulton, SD	Lat 43°45'39", long 97°54'25", in NW¼NW¼ sec.3, T.103 N., R.59 W., Hanson County, Hydrologic Unit 10160011, near right bank on downstream wingwall of highway bridge, 4.9 miles (7.9 km) northwest of Fulton and 9.5 miles (15.3 km) upstream from mouth.	270	1966-72‡, 1973-78	3- -78	[b]9.13	[c]500
06477400	Firesteel Creek tributary near Wessington Springs, SD	Lat 44°04'26", long 98°34'52", in NW¼ sec.13, T.107 N., R.65 W., Jerauld County, Hydrologic Unit 10160011, at culvert on State Highway 34, 0.8 mile (1.3 km) west of Wessington Springs.	.22	1968-78	3- -78	[b]5.57	[c]30
06478050	Enemy Creek tributary near Mount Vernon, SD	Lat 43°36'19", long 98°15'55", in NE¼SE¼ sec.28, T.102 N., R.62 W., Davison County, Hydrologic Unit 10160011, at culvert on county highway, 7.3 miles (11.7 km) south of Mount Vernon.	3.38	1969-78	7-21-78	4.68	24

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m^2)	Period of record	Annual maximum		
					Date	Gage height (feet)	Discharge (ft^3/s)
		James River basin - Continued					
06478200	Coffee Creek tributary near Parkston, SD	Lat 43°27'26", long 97°59'42", in SE¼SE¼ sec.24, T.100 N., R.61 W., Hutchinson County, Hydrologic Unit 10160011, at culvert on State Highway 37, 4.2 miles (6.8 km) north of Parkston.	.81	1968-78	6-25-78	4.92	81
06478260	North Branch Dry Creek near Parkston, SD	Lat 43°22'13", long 97°50'51", in NE¼NW¼ sec.29, T.99 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, at bridge on county highway, 7.5 miles (12.1 km) southeast of Parkston.	54.1	1956-78	5-29-78	5.23	370
06478280	South Branch Dry Creek near Parkston, SD	Lat 43°21'22", long 97°49'35", in NW¼ sec.33, T.99 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, at bridge on county highway, 8.3 miles (13.4 km) southeast of Parkston.	25.8	1956-78	7-22-78	3.41	44
06478300	Dry Creek near Parkston, SD	Lat 43°22'18", long 97°49'23", in SE¼ sec.21, T.99 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, at bridge on county highway, 8.5 miles (13.7 km) southeast of Parkston.	99.2	1956-78	5-29-78	6.22	380
06478400	Lonetree Creek tributary near Kaylor, SD	Lat 43°17'18", long 97°50'10", in NE¼SE¼ sec.20, T.98 N., R.59 W., Hutchinson County, Hydrologic Unit 10160011, at culvert on county highway, 7.2 miles (11.6 km) north of Kaylor.	3.65	1970-78	4- 1-78	3.75	48
		Vermillion River basin					
06478630	West Fork Vermillion River near DeSmet, SD	Lat 44°12'54", long 97°33'04", in NW¼SW¼ sec.27, T.109 N., R.56 W., Kingsbury County, Hydrologic Unit 10170102, at culvert on State Highway 25, 11.5 miles (18.5 km) south of DeSmet.	5.34	1970-78	3- -78	[b]6.08	[c]50
06478650	West Fork Vermillion River tributary near Monroe, SD	Lat 43°28'35", long 97°15'39", in SW¼SW¼ sec.17, T.100 N., R.54 W., Turner County, Hydrologic Unit 10170102, at culvert on county highway, 3.2 miles (5.1 km) north of Marion, and 2.2 miles (3.5 km) west of Monroe.	2.74	1969-78	7-22-78	4.58	35
06478800	Saddlerock Creek near Canton, SD	Lat 43°12'20", long 96°43'37", in NW¼SW¼ sec.23, T.97 N., R.50 W., Lincoln County, Hydrologic Unit 10170102, at bridge on county highway, 9.6 miles (15.4 km) southwest of Canton.	13.0	1956-78[h]	3- -78	[b]5.75	[c]100
06478820	Saddlerock Creek tributary near Beresford, SD	Lat 43°12'21", long 96°45'51", in NE¼NW¼NW¼ sec.21, T.97 N., R.50 W., Lincoln County, Hydrologic Unit 10170102, at culvert on county highway, 9 miles (14 km) north of Beresford.	2.22	1956-78	7-22-78	5.05	120
06478840	Saddlerock Creek near Beresford, SD	Lat 43°12'55", long 96°49'33", in SE¼SE¼ sec.14, T.97 N., R.51 W., Lincoln County, Hydrologic Unit 10170102, at bridge on county highway, 9.5 miles (15.3 km) northwest of Beresford.	23.1	1956-70, 1972-78	3- -78	[b]5.53	[c]200

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

Station No.	Station name	Location	Drainage area (m²)	Period of record	Annual maximum Date	Annual maximum Gage height (feet)	Annual maximum Discharge (ft³/s)
		Vermillion River basin - Continued					
06478950	Ash Creek near Beresford, SD	Lat 43°05'01", long 96°50'08", in NE¼NW¼ sec.2, T.95 N., R.51 W., Clay County, Hydrologic Unit 10170102, at culvert on State Highway 46, 2.1 miles (3.4 km) west of Beresford.	5.00	1969-78	7-22-78	7.38	584
06479020	Smoky Run near Irene, SD	Lat 43°04'56", long 97°19'12", in SE¼SE¼SE¼ sec.34, T.96 N., R.55 W., Yankton County, Hydrologic Unit 10170102, at culvert on State Highway 46, 0.1 mile (0.2 km) west of Mayfield, and 8.0 miles (12.9 km) west of Irene.	4.96	1969-78	7-21-78	4.01	23
		Big Sioux River basin					
06479260	Big Sioux River tributary No. 3 near Summit, SD	Lat 45°13'30", long 97°06'27", in SE¼ sec.25, T.121 N., R.52 W., Grant County, Hydrologic Unit 10170202, at culvert on county highway, 6.5 miles (10.5 km) southwest of Summit, 11.5 miles (18.5 km) southeast of Waubay.	6.61	1956-78	5-29-78	4.44	112
06479350	Soo Creek tributary near South Shore, SD	Lat 45°06'22", long 97°01'12", in NW¼NE¼ sec.24, T.119 N., R.52 W., Codington County, Hydrologic Unit 10170202, at culvert on State Highway 20, 3.8 miles (6.1 km) west of South Shore.	1.56	1970-78	7- 6-78	8.82	280
06479550	Dolph Creek tributary near Lake Norden, SD	Lat 44°35'15", long 97°19'37", in SW¼SW¼ sec.16, T.113 N., R.54 W., Hamlin County, Hydrologic Unit 10170201, at culvert on State Highway 28, 5.4 miles (8.7 km) west of Lake Norden.	5.91	1970-78	4-18-78	3.93	32
06479750	Peg Munky Run near Estelline, SD	Lat 44°34'22", long 96°51'15", in N½ sec.29, T.113 N., R.50 W., Deuel County, Hydrologic Unit 10170202, at bridge on State Highway 28, 2.5 miles (4.0 km) east of Estelline.	25.2	1956-78	5-28-78	6.84	410
06479800	North Deer Creek near Estelline, SD	Lat 44°27'44", long 96°47'13", in SE¼ sec.35, T.112 N., R.50 W., Brookings County, Hydrologic Unit 10170202, at bridge on U.S. Highway 77, 9.8 miles (15.8 km) southeast of Estelline.	48.3	1956-78	4-23-78	5.43	100
06479810	North Deer Creek tributary near Brookings, SD	Lat 44°22'44", long 96°47'14", in NW¼SW¼NW¼ sec.36, T.111 N., R.50 W., Brookings County, Hydrologic Unit 10170202, at culvert on U.S. Highway 77, 4.5 miles (7.2 km) north of Brookings.	.33	1969-78	3- -78	[b]5.44	[c]10
06479900	Sixmile Creek tributary near Brookings, SD	Lat 44°22'57", long 96°40'48", in NE¼NW¼ sec.35, T.111 N., R.49 W., Brookings County, Hydrologic Unit 10170202, at bridge on county highway, 7.3 miles (11.7 km) northeast of Brookings.	9.78	1956-76	6-15-56 3-21-57 6- 7-61 7- 4-62 7-28-63 4-27-64 6-15-67 5-30-72 3-14-73 3- -74	3.88 [b]4.83 6.29 6.68 6.64 4.85 4.74 4.76 [b]5.30 [b]4.49	[f]56 [cf]40 [f]656 [f]840 [f]820 [f]214 [f]192 [f]196 [cf]100 [cf]20
06479950	Deer Creek near Brookings, SD	Lat 44°23'03", long 96°37'19", in SW¼ sec.29, T.111 N., R.48 W., Brookings County, Hydrologic Unit 10170202, at culvert on county highway, 9.8 miles (15.8 km) northeast of Brookings.	4.04	1956-78	3- -78	[b]3.47	[c]30

See footnotes at end of the table.

Annual maximum discharge at crest-stage partial-record stations--Continued

					Annual maximum		
Station No.	Station name	Location	Drainage area (m^2)	Period of record	Date	Gage height (feet)	Discharge (ft^3/s)
		Big Sioux River basin - Continued					
06480720	Bachelor Creek tributary near Wentworth, SD	Lat 44°00'28", long 97°00'02", in NE¼NE¼NW¼ sec.7, T.106 N., R.51 W., Lake County, Hydrologic Unit 10170203, at culvert on State Highway 34, 1.8 miles (2.9 km) northwest of Wentworth.	1.03	1969-78	3- -78	[b]8.75	[c]15
06482600	West Pipestone Creek tributary near Garretson, SD	Lat 43°42'12", long 96°36'43", in SE¼SE¼ sec.20, T.103 N. R.48 W., Minnehaha County, Hydrologic Unit 10170203, at culvert on county highway, 5.3 miles (8.5 km) west of Garretson.	2.16	1969-78	8- 1-78	7.32	216
06485550	West Union Creek near Alcester, SD	Lat 42°56'18", long 96°38'00", in SW¼SE¼ sec.21, T.94 N., R.49 W., Union County, Hydrologic Unit 10170203, at culvert on county highway, 5.7 miles (9.2 km) south of Alcester.	3.48	1969-78	7-22-78	3.91	272

‡ Operated as a continuous-record gaging station.
a Approximate.
b Backwater from ice.
c Estimated.
d Discontinued Sept. 30, 1977.
e No evidence of any flow during the water year.
f Revised.
g Discontinued May 4, 1978.
h Discontinued Sept. 30, 1978.

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DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)
455228100140200 - SPRING CR ABV LK POCASSE NR HERREID SD SEC 25 (LAT 45 52 28 LONG 100 14 02)										
APR , 1978 26...	1550	27	500	8.1	13.0	180	46	43	17	29
MAY 10...	1350	10	760	7.4	18.0	260	59	63	26	45
JUN 06...	1140	1.3	725	8.7	22.0	290	42	69	28	53
JUL 06...	1145	69	310	7.4	24.0	110	0	30	9.4	13
AUG 01...	1220	3.8	700	8.2	22.0	240	0	58	24	41
SEP 27...	1200	.15	730	8.7	14.5	210	19	37	28	62
455404100040700 - NFK SPRING CR NR HERREID SD 128N76W17CCBC (LAT 45 54 04 LONG 100 04 07)										
APR , 1978 26...	1345	.28	620	8.1	13.0	260	120	64	25	25
JUL 06...	1030	1.3	290	7.8	23.5	130	5	33	11	6.2

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

Water-quality partial-record stations are particular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrologic analyses. The data are collected usually less than quarterly.

DATE	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, DIS-SOLVED (TONS PER DAY) (70302)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	BORON, DIS-SOLVED (UG/L AS B) (01020)
455228100140200 - SPRING CR ABV LK POCASSE NR HERREID SD SEC 25 (LAT 45 52 28 LONG 100 14 02)									
APR , 1978									
26...	13	295	.40	21.5	.00	.25	.18	.13	90
MAY									
10...	9.8	428	.58	12.0	.00	.24	.20	.16	120
JUN									
06...	8.4	463	.63	1.63	.02	.20	.21	.11	140
JUL									
06...	20	186	.25	34.7	.02	.90	.56	.54	90
AUG									
01...	9.8	376	.51	3.86	.00	.42	.39	.36	150
SEP									
27...	1.5	405	.55	.16	.01	.20	.17	.16	130
455404100040700 - NFK SPRING CR NR HERREID SD 128N76W17CCBC (LAT 45 54 04 LONG 100 04 07)									
APR , 1978									
26...	20	404	.55	.31	.01	.16	.12	.09	60
JUL									
06...	20	181	.25	.65	.03	.66	.57	.54	90

455228100140200 - SPRING CR ABV LK POCASSE NR HERREID SD SEC 25 (LAT 45 52 28 LONG 100 14 02)

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
APR , 1978									
26...	25	.9	11	160	0	130	98	5.0	.1
MAY									
10...	26	1.2	13	250	0	210	140	7.2	.1
JUN									
06...	28	1.4	9.8	300	0	250	140	6.5	.1
JUL									
06...	18	.5	13	150	0	120	21	4.0	.1
AUG									
01...	26	1.1	12	310	0	250	70	6.9	.1
SEP									
27...	38	1.9	12	210	10	190	140	9.9	.2

455404100040700 - NFK SPRING CR NR HERREID SD 128N76W17CCBC (LAT 45 54 04 LONG 100 04 07)

DATE	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)
APR , 1978									
26...	16	.7	13	170	0	140	170	2.9	.1
JUL									
06...	9	.2	13	150	0	120	18	3.4	.1

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DATE	DATE ILLEGAL CODE	TIME	TEMPER-ATURE (DEG C) (00010)	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49 LONG 103 58 23)							
MAY , 1977							
16...	--	--	--	--	3	4	5
06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10 LONG 102 21 45)							
JUN , 1977							
15...	--	--	--	--	1	1	3
06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34 LONG 103 32 38)							
MAY , 1977							
16...	--	--	--	--	9	14	37
06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56 LONG 102 38 27)							
JUN , 1977							
15...	--	--	--	--	20	28	32
06357500 - GRAND R AT SHADEHILL SD (LAT 45 45 25 LONG 102 11 41)							
JUN , 1977							
15...	--	--	--	--	1	3	9
06357800 - GRAND R AT LITTLE EAGLE SD (LAT 45 30 28 LONG 100 49 04)							
JUN , 1977							
15...	--	--	--	--	4	5	54
06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52 LONG 102 09 22)							
MAY , 1977							
16...	--	--	--	--	5	13	43
06402000 - FALL R AT HOT SPRINGS SD (LAT 43 25 50 LONG 103 28 33)							
JUL , 1977							
08...	--	--	--	--	3	7	13
06402500 - BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56 LONG 103 18 22)							
JUL , 1977							
07...	--	--	--	--	6	8	10
06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41 LONG 103 11 44)							
JUL , 1977							
07...	--	--	--	--	2	2	5

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49 LONG 103 58 23)							
MAY , 1977 16...	11	38	60	81	93	100	--
06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10 LONG 102 21 45)							
JUN , 1977 15...	5	13	23	36	49	70	100
06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34 LONG 103 32 38)							
MAY , 1977 16...	49	58	67	78	89	92	100
06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56 LONG 102 38 27)							
JUN , 1977 15...	33	35	59	87	97	100	--
06357500 - GRAND R AT SHADEHILL SD (LAT 45 45 25 LONG 102 11 41)							
JUN , 1977 15...	12	17	27	40	60	82	100
06357800 - GRAND R AT LITTLE EAGLE SD (LAT 45 30 28 LONG 100 49 04)							
JUN , 1977 15...	90	96	98	100	--	--	--
06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52 LONG 102 09 22)							
MAY , 1977 16...	53	58	64	76	90	100	--
06402000 - FALL R AT HOT SPRINGS SD (LAT 43 25 50 LONG 103 28 33)							
JUL , 1977 08...	16	21	27	38	53	83	100
06402500 - BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56 LONG 103 18 22)							
JUL , 1977 07...	14	15	20	26	31	46	100
06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41 LONG 103 11 44)							
JUL , 1977 07...	17	31	52	63	87	100	--

DATE	DATE ILLEGAL CODE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
06409000 - CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY SD (LAT 44 00 49 LONG 103 49 48)							
JUL , 1977							
04...	--	--	--	--	5	8	12
06411500 - RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36 LONG 103 28 54)							
JUL , 1977							
04...	--	--	--	--	6	8	15
06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09 LONG 103 14 31)							
JUL , 1977							
06...	--	--	--	--	2	3	8
06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26 LONG 104 02 54)							
JUL , 1977							
05...	--	--	--	21	8	14	27
AUG							
11...	--	1140	14.5	13	5	8	15
06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02 LONG 103 50 20)							
MAY , 1977							
07...	--	--	--	--	1	2	3
06437000 - BELLE FOURCHE R NEAR STURGIS SD (LAT 44 30 47 LONG 103 08 11)							
MAY , 1977							
07...	--	--	--	--	13	17	48
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09 LONG 101 31 28)							
JUN , 1977							
14...	--	--	--	--	9	15	37
06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00 LONG 101 37 47)							
JUN , 1977							
14...	--	--	21.0	12	11	24	61
06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03 LONG 101 13 49)							
JUN , 1977							
13...	--	--	--	--	--	0	17
06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32 LONG 100 53 00)							
JUN , 1977							
13...	--	--	--	--	0	2	34

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
06409000 - CASTLE CR ABOVE DEERFIELD RES NEAR HILL CITY SD (LAT 44 00 49 LONG 103 49 48)							
JUL , 1977							
04...	24	44	51	62	80	99	100
06411500 - RAPID CR BELOW PACTOLA DAM SD (LAT 44 04 36 LONG 103 28 54)							
JUL , 1977							
04...	31	36	41	49	63	93	100
06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09 LONG 103 14 31)							
JUL , 1977							
06...	13	18	22	29	41	72	100
06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26 LONG 104 02 54)							
JUL , 1977							
05...	40	44	47	51	63	84	100
AUG							
11...	33	38	47	58	69	84	100
06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02 LONG 103 50 20)							
MAY , 1977							
07...	5	10	17	30	51	100	--
06437000 - BELLE FOURCHE R NEAR STURGIS SD (LAT 44 30 47 LONG 103 08 11)							
MAY , 1977							
07...	83	84	85	86	90	100	--
06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09 LONG 101 31 28)							
JUN , 1977							
14...	74	88	93	98	100	--	--
06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00 LONG 101 37 47)							
JUN , 1977							
14...	78	78	79	83	88	98	100
06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03 LONG 101 13 49)							
JUN , 1977							
13...	80	98	99	100	--	--	--
06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32 LONG 100 53 00)							
JUN , 1977							
13...	93	99	100	--	--	--	--

DATE	DATE ILLEGAL CODE	TIME	TEMPER- ATURE (DEG C) (00010)	STREAM- FLOW, INSTAN- TANEOUS (CFS) (00061)	BED MAT. FALL DIAM. % FINER THAN .062 MM (80158)	BED MAT. FALL DIAM. % FINER THAN .125 MM (80159)	BED MAT. FALL DIAM. % FINER THAN .250 MM (80160)
06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 04 LONG 100 44 52)							
JUN , 1977							
14...	--	--	--	--	1	4	12
06471500 - ELM R AT WESTPORT SD (LAT 45 39 22 LONG 098 29 48)							
JUN , 1977							
15...	--	--	--	--	1	1	20
06473000 - JAMES R AT ASHTON SD (LAT 45 00 02 LONG 098 28 57)							
JUN , 1977							
15...	--	--	--	--	55	86	96
06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26 LONG 098 04 14)							
MAY , 1977							
12...	--	--	--	--	5	6	42
06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30 LONG 098 14 33)							
MAY , 1977							
12...	--	--	--	--	2	2	6
06478500 - JAMES R NEAR SCOTLAND SD (LAT 43 11 09 LONG 097 38 07)							
MAY , 1977							
11...	--	--	--	--	47	78	93
06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48 LONG 096 44 55)							
MAY , 1977							
12...	--	--	--	--	5	5	7
06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01 LONG 096 47 26)							
MAY , 1977							
12...	--	--	--	--	5	5	13

DATE	BED MAT. FALL DIAM. % FINER THAN .500 MM (80161)	BED MAT. FALL DIAM. % FINER THAN 1.00 MM (80162)	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM (80169)	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM (80170)	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM (80171)	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM (80172)	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM (80173)
06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 04 LONG 100 44 52)							
JUN , 1977							
14...	61	78	82	89	96	100	--
06471500 - ELM R AT WESTPORT SD (LAT 45 39 22 LONG 098 29 48)							
JUN , 1977							
15...	15	39	49	62	81	100	--
06473000 - JAMES R AT ASHTON SD (LAT 45 00 02 LONG 098 28 57)							
JUN , 1977							
15...	96	96	99	100	--	--	--
06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26 LONG 098 04 14)							
MAY , 1977							
12...	95	98	99	100	--	--	--
06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30 LONG 098 14 33)							
MAY , 1977							
12...	22	53	67	80	88	93	100
06478500 - JAMES R NEAR SCOTLAND SD (LAT 43 11 09 LONG 097 38 07)							
MAY , 1977							
11...	94	94	98	99	100	--	--
06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48 LONG 096 44 55)							
MAY , 1977							
12...	25	44	52	61	74	100	--
06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01 LONG 096 47 26)							
MAY , 1977							
12...	26	52	74	84	87	93	100

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
06334500 - LITTLE MISSOURI R AT CAMP CROOK SD (LAT 45 32 49 LONG 103 58 23)											
OCT , 1977						MAY , 1978					
06...	1215	559	9.0	10.0	--	03...	0930	76	12.0	--	1200
NOV						18...	1400	791	14.5	--	850
02...	0900	15	4.0	7.0	1000	JUL					
30...	1115	9.5	.0	.5	--	12...	0930	90	20.0	--	1550
JAN , 1978						AUG					
31...	1230	4.8	.0	--	2000	08...	0945	40	21.5	--	1850
FEB						SEP					
28...	1000	4.5	.0	--	2600	06...	1545	20	27.0	--	2180
MAR											
25...	1230	7550	5.0	--	310						
06355500 - NORTH FORK GRAND R NEAR WHITE BUTTE SD (LAT 45 48 10 LONG 102 21 45)											
OCT , 1977						MAY , 1978					
19...	1050	12	7.0	12.5	--	03...	0820	104	120	10.0	2100
NOV						JUN					
22...	1435	3.1	.0	-20.0	2850	01...	1035	111	130	10.5	2230
DEC						28...	0925	211	22.0	26.0	1820
13...	1125	3.1	.0	2.0	4000	JUL					
JAN , 1978						26...	1555	28	28.5	33.5	2330
11...	1430	1.7	.0	-15.0	4600	AUG					
FEB						23...	1040	2.8	22.0	20.0	3020
15...	0835	1.5	.0	-20.0	3820	SEP					
MAR						26...	1000	39	16.0	19.5	3180
14...	0905	3.6	1.0	1.0	3500						
APR											
11...	1300	403	5.0	7.0	--						
06356000 - SOUTH FORK GRAND R AT BUFFALO SD (LAT 45 34 34 LONG 103 32 38)											
OCT , 1977						MAY , 1978					
06...	1810	3.3	9.0	8.0	530	03...	1345	4.7	14.0	--	1500
NOV						JUN					
02...	1115	2.9	5.0	10.5	1900	01...	0915	29	9.5	--	610
JAN , 1978						JUL					
04...	1215	2.2	.0	--	1900	12...	1230	2.8	21.5	--	1800
31...	1400	2.8	.0	--	1600	AUG					
FEB						08...	1245	2.6	24.0	--	1850
28...	1200	2.1	.0	--	2050	SEP					
MAR						06...	1145	1.9	23.0	--	1800
25...	1700	306	4.5	--	210						
06356500 - SOUTH FORK GRAND R NEAR CASH SD (LAT 45 38 56 LONG 102 38 27)											
OCT , 1977						MAY , 1978					
19...	0845	16	6.0	-3.0	--	03...	1110	55	13.0	16.0	2020
NOV						JUN					
22...	1235	3.1	.0	-5.0	2250	01...	1415	340	12.0	15.0	780
DEC						28...	1225	204	23.0	29.0	870
13...	0940	1.8	.0	-2.0	2900	JUL					
JAN , 1978						26...	1345	85	26.0	30.5	940
12...	1200	4.2	.0	-1.5	2760	AUG					
FEB						22...	1330	9.4	22.0	21.0	2200
15...	1145	2.6	.0	-15.0	2490	SEP					
MAR						26...	1250	13	17.5	20.0	2220
24...	1405	1860	1.0	5.0	290						
APR											
11...	1425	127	--	6.0	--						

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06359500 - MOREAU R NEAR FAITH SD (LAT 45 11 52 LONG 102 09 22)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
19...	1440	36	12.0	25.0	--
NOV					
23...	0920	3.5	.0	7.5	910
DEC					
14...	1045	5.6	.0	2.0	2500
JAN , 1978					
10...	1600	5.0	.0	-20.0	2830
MAR					
14...	1510	8.9	.0	1.0	1640
25...	1325	6110	20.0	12.5	--
APR					
12...	0915	193	5.0	8.0	--
MAY , 1978					
04...	0910	114	13.0	10.0	850
JUN					
02...	0930	97	13.0	16.0	1720
27...	1415	134	24.5	29.0	1750
JUL					
26...	0950	354	22.5	26.5	960
AUG					
22...	1000	23	22.0	21.0	1160
SEP					
25...	1620	7.2	23.0	25.5	1610

06392900 - BEAVER CR AT MALLO CAMP NEAR FOUR CORNERS WY (LAT 44 05 04 LONG 104 03 41)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
11...	1515	1.4	2.0	3.0	--
NOV					
10...	1430	1.9	.5	--	550
22...	1545	10	.5	-.5	2150
DEC					
15...	1145	1.3	2.0	4.0	470
JAN , 1978					
24...	1100	1.4	.0	--	--
MAR					
13...	1200	1.5	3.0	--	--
APR , 1978					
12...	1415	1.7	4.5	--	460
MAY					
12...	1115	3.7	5.0	--	460
JUN					
09...	1000	2.7	8.0	--	490
JUL					
24...	1045	3.0	9.5	--	--
SEP					
13...	1010	3.0	6.0	--	475

06392950 - STOCKADE BEAVER CR NEAR NEWCASTLE WY (LAT 43 51 30 LONG 104 06 23)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
11...	1200	13	4.0	2.5	--
NOV					
10...	1100	14	2.0	9.5	1220
DEC					
15...	1415	14	4.5	6.0	2150
JAN , 1978					
17...	1100	14	.5	--	2050
MAR					
13...	1015	15	5.5	--	--
APR , 1978					
12...	1015	14	6.5	--	2300
MAY					
11...	--	13	10.0	--	2210
JUN					
08...	1625	10	19.0	--	--
JUL					
24...	1530	9.4	19.0	--	2460
SEP					
13...	1345	14	12.0	--	2520

06395000 - CHEYENNE R AT EDGEMONT SD (LAT 43 18 20 LONG 103 49 14)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
04...	1200	83	11.5	11.0	--
27...	1530	1.1	17.0	15.0	--
NOV					
22...	1345	.36	.5	5.0	4100
DEC					
20...	0850	7.8	.0	-7.0	6000
JAN , 1978					
18...	1030	3.8	.5	--	4575
FEB					
14...	0930	6.0	.0	--	6500
MAR					
15...	1100	591	.0	--	650
20...	1830	976	1.0	--	1000
APR , 1978					
26...	1615	23	18.0	--	4600
MAY					
20...	1400	26300	13.0	--	600
JUN					
19...	1630	234	23.5	--	--
JUL					
18...	1000	64	22.5	--	4000
AUG					
15...	1545	274	23.0	--	2950
SEP					
19...	1400	19	12.0	--	4550

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06400000 - HAT CR NEAR EDGEMONT SD (LAT 43 14 46 LONG 103 35 16)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
MAR . 1978						MAY . 1978					
15...	1415	508	.0	--	480	24...	1000	11	20.0	--	2800
20...	1630	699	8.0	--	600	JUN					
23...	1130	254	6.0	--	620	20...	1045	.16	23.5	--	--
APR											
26...	1130	1.9	16.0	--	1630						

06400497 - CASCADE SPRINGS NEAR HOT SPRINGS SD (LAT 43 20 20 LONG 103 33 08)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT . 1977						JUN . 1978					
14...	--	20	20.0	17.0	--	20...	1145	23	21.0	--	--
27...	1100	22	21.0	7.0	--	AUG					
JAN . 1978						15...	0915	17	21.5	--	2720
18...	1330	25	20.0	--	2400	SEP					
FEB						19...	0845	18	20.0	--	2370
14...	1315	22	20.0	--	2700						
APR											
26...	1015	19	21.0	--	2510						

06402000 - FALL R AT HOT SPRINGS SD (LAT 43 25 50 LONG 103 28 33)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT . 1977						FEB . 1978					
04...	1515	22	24.0	12.5	--	13...	1600	22	20.0	--	2050
26...	1700	22	24.5	19.0	--	APR					
NOV						26...	0815	22	24.0	--	1210
23...	1500	22	22.0	.0	1070	JUN					
DEC						20...	1500	21	27.5	--	--
19...	1530	22	21.0	--	1800	SEP					
JAN . 1978						18...	1430	18	25.0	--	1420
17...	1700	22	17.0	--	1240						

06402500 - BEAVER CR NEAR BUFFALO GAP SD (LAT 43 27 56 LONG 103 18 22)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT . 1977						APR . 1978					
04...	1700	1.5	13.0	9.0	4750	25...	1600	1.8	16.0	--	2680
22...	1550	10	.5	-.5	2150	MAY					
DEC						25...	1500	1.2	22.5	--	2730
20...	1330	11	2.0	-5.0	2600	JUL					
JAN . 1978						19...	1000	1.0	18.5	--	3290
16...	1500	12	.0	--	2675	AUG					
FEB						16...	1115	.68	24.5	--	3250
15...	1000	9.6	.0	--	3200	SEP					
MAR						20...	1230	6.1	12.0	--	2750
15...	1645	14	7.0	--	2900						

06404000 - BATTLE CR NEAR KEYSTONE SD (LAT 43 52 18 LONG 103 20 09)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT . 1977						MAY . 1978					
06...	1500	1.8	11.5	--	--	11...	0915	125	8.5	--	115
NOV						24...	1515	112	19.0	--	150
02...	1300	1.4	8.0	--	375	JUN					
28...	1330	1.9	1.0	--	360	21...	1400	12	22.0	--	230
DEC						JUL					
27...	0915	.93	.0	--	450	20...	1430	3.4	18.5	--	300
JAN . 1978						AUG					
23...	1045	.66	.5	--	400	17...	1430	3.5	22.0	--	260
FEB						SEP					
16...	1500	1.0	.0	--	350	21...	1030	.86	12.0	--	300
APR											
03...	1400	5.4	9.5	--	250						
27...	1500	2.7	18.0	--	260						

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06404998 - GRACE COOLIDGE CR NR GAME LODGE NR CUSTER (LAT 43 45 40 LONG 103 21 49)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
06...	1030	1.2	8.5	6.5	--
NOV					
22...	1330	2.4	.5	4.0	245
DEC					
27...	1045	.81	.0	10.0	220
JAN , 1978					
19...	1230	.95	1.0	--	270
FEB					
16...	1100	.94	.0	--	240
APR					
03...	1045	1.9	9.0	--	170
APR , 1978					
27...	1030	1.3	12.5	--	185
MAY					
23...	1300	30	16.5	--	150
JUN					
23...	1400	5.2	18.5	--	180
JUL					
20...	1030	1.9	15.0	--	180
SEP					
21...	1245	1.2	11.0	--	195

06406000 - BATTLE CR AT HERMOSA SD (LAT 43 49 41 LONG 103 11 44)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
06...	1030	3.7	10.0	10.0	--
NOV					
22...	1030	3.9	.5	-9.0	800
DEC					
27...	1300	3.4	.5	1.0	770
JAN , 1978					
19...	1430	3.3	1.0	--	775
FEB					
16...	1345	3.5	.0	--	650
APR					
03...	1300	4.2	11.0	--	740
27...	1230	3.7	15.0	--	320
MAY , 1978					
23...	1515	114	19.0	--	230
JUN					
21...	1500	16	18.5	--	350
JUL					
20...	1245	10	18.0	--	595
AUG					
16...	1245	8.9	19.5	--	675
SEP					
20...	1515	4.7	12.0	--	630

06408500 - SPRING CR NEAR HERMOSA SD (LAT 43 56 30 LONG 103 09 33)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
06...	0830	.35	9.0	10.0	--
NOV					
03...	1245	44	8.0	12.5	1110
22...	0945	.47	.5	-8.0	1200
DEC					
20...	1500	.87	3.0	-5.0	2700
JAN , 1978					
23...	1230	.52	1.5	--	1300
FEB					
16...	0900	.36	.0	--	1200
APR					
03...	0900	.84	11.0	--	1120
MAY , 1978					
11...	1400	1.1	18.0	--	1100
24...	1630	131	17.0	--	330
JUN					
23...	1200	16	21.0	--	580
JUL					
20...	0915	2.4	19.5	--	870
AUG					
17...	0915	17	18.5	--	910
SEP					
22...	0845	1.6	10.5	--	890

06410000 - CASTLE CR BELOW DEERFIELD DAM SD (LAT 44 01 45 LONG 103 46 53)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
18...	1100	2.6	9.0	--	--
NOV					
07...	1530	2.3	8.5	--	510
DEC					
06...	1500	2.1	2.0	--	405
JAN , 1978					
10...	1330	2.0	3.0	--	420
FEB					
08...	1015	8.0	1.0	--	530
MAR , 1978					
09...	1200	8.8	6.0	--	390
APR					
11...	1015	16	4.0	--	410
MAY					
16...	1315	41	11.0	--	430
JUN					
21...	1330	33	9.5	--	435
JUL					
28...	1330	12	10.0	--	450

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06410500 - RAPID CR ABOVE PACTOLA RES NEAR SILVER CITY SD (LAT 44 05 05 LONG 103 34 48)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
NOV , 1977					
09...	1300	12	.5	.0	430
DEC					
07...	1330	19	.5	1.5	--
JAN , 1978					
11...	1100	19	.0	--	470
FEB					
06...	1230	22	.0	--	485
MAR					
08...	1300	23	.0	--	400
APR					
10...	1000	48	3.0	--	390
MAY , 1978					
09...	1015	210	4.5	--	320
JUN					
15...	1130	94	16.0	--	--
JUL					
17...	1100	44	17.0	--	405
AUG					
02...	0915	56	14.0	--	385
SEP					
12...	0900	43	9.5	--	420

06412500 - RAPID CR ABOVE CANYON LAKE NEAR RAPID CITY SD (LAT 44 03 04 LONG 103 18 47)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
17...	--	4.3	8.5	--	--
NOV					
07...	1030	3.5	6.0	--	480
DEC					
08...	1145	4.4	.5	--	400
JAN , 1978					
11...	1430	8.1	.0	--	410
MAR					
17...	1500	18	8.5	--	440
APR , 1978					
03...	1530	9.6	9.5	--	400
MAY					
09...	1430	89	12.5	--	350
JUN					
05...	1530	299	10.5	--	420
AUG					
01...	1445	58	19.5	--	377
SEP					
11...	1400	36	16.0	--	360

06414000 - RAPID CR AT RAPID CITY SD (LAT 44 05 09 LONG 103 14 31)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
07...	1200	24	10.0	11.0	720
17...	1400	26	13.5	22.0	--
DEC					
08...	1400	20	.5	-20.0	600
JAN , 1978					
09...	1515	26	.0	.0	670
FEB					
15...	1400	28	1.0	--	530
MAR					
31...	1345	27	15.5	--	650
MAY , 1978					
09...	1130	118	12.0	--	570
JUN					
05...	1415	399	10.5	--	--
AUG					
01...	1145	73	22.0	--	480
SEP					
14...	1430	50	19.5	--	480

06422500 - BOXELDER CR NEAR NEMO SD (LAT 44 08 38 LONG 103 27 16)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
18...	1000	8.0	6.0	12.5	--
NOV					
09...	1030	5.2	.0	-2.0	370
DEC					
07...	1030	4.8	.5	--	390
JAN , 1978					
11...	0915	4.8	.0	--	380
FEB					
06...	1430	3.7	.0	--	375
MA					
08...	1015	5.2	.0	--	330
APR , 1978					
06...	1345	10	11.5	--	305
MAY					
09...	1400	127	17.0	--	200
JUN					
15...	1500	29	23.5	--	290
JUL					
17...	0915	18	20.0	--	310
AUG					
07...	1100	14	15.5	--	388
SEP					
14...	1215	9.8	15.0	--	330

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06423500 - CHEYENNE R NEAR WASTA SD (LAT 44 04 52 LONG 102 24 03)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						APR , 1978					
19...	1215	115	13.0	25.0	--	06...	1430	155	17.0	--	2400
NOV						MAY					
09...	1200	159	.5	1.5	1545	22...	1300	23100	18.0	--	2000
DEC						24...	1115	4410	19.0	--	1700
06...	1200	79	.0	-5.0	2300	JUL					
JAN , 1978						05...	1115	168	24.5	--	1660
09...	1530	76	.0	--	2260	AUG					
FEB						04...	1410	706	23.5	--	1850
09...	1130	8.0	.0	--	3500	SEP					
MAR						14...	0915	97	13.0	--	2500
07...	1030	78	.0	--	2000						

06425500 - ELK CR NEAR ELM SPRINGS SD (LAT 44 14 54 LONG 102 30 10)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
MAR , 1978						JUN , 1978					
15...	1245	540	.5	--	--	06...	1215	25	25.0	--	1150
APR						JUL					
06...	1245	25	15.5	--	1900	05...	1300	2.1	29.5	--	1790
MAY											
08...	1015	316	6.5	--	950						

06429500 - COLD SPRINGS CR NEAR BUCKHORN WY (LAT 44 09 14 LONG 104 04 39)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						APR , 1978					
11...	1415	6.5	.5	1.0	--	12...	1315	5.4	6.0	--	490
NOV						MAY					
10...	1500	4.5	.5	1.0	1075	12...	1030	5.1	4.5	--	475
DEC						JUN					
15...	1000	4.3	2.0	13.0	480	09...	0830	5.7	6.5	--	480
JAN , 1978						JUL					
24...	1300	5.8	.0	--	450	24...	1300	4.8	14.0	--	485
MAR						SEP					
13...	1430	5.0	5.0	--	--	13...	0900	4.1	5.0	--	460

06429905 - SAND CR NEAR RANCH A NEAR BEULAH WY (LAT 44 31 13 LONG 104 05 00)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						MAY , 1978					
03...	1015	28	12.5	14.0	--	12...	1200	64	9.0	--	500
FEB , 1978						JUL					
27...	1200	22	5.0	--	920	13...	1200	32	14.0	--	900
MAR						SEP					
28...	1245	25	11.0	--	850	11...	1115	29	13.5	--	835

06430000 - MURRAY DITCH AT WY-SD STATE LINE (LAT 44 34 35 LONG 104 02 58)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						AUG , 1978					
04...	0930	8.1	11.5	13.0	--	09...	1145	5.3	18.0	--	1630
NOV						SEP					
01...	1430	8.7	8.5	7.0	1570	05...	1200	9.4	17.0	--	1660
JUL , 1978											
13...	0830	13	14.0	--	1510						

06430500 - REDWATER CR AT WY-SD STATE LINE (LAT 44 34 26 LONG 104 02 54)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						MAR , 1978					
04...	1230	31	11.5	10.5	--	28...	0845	48	9.0	--	1430
NOV						MAY					
01...	1345	30	7.5	8.5	1550	30...	1400	64	14.0	--	1310
28...	1345	42	6.0	6.0	1430	JUL					
JAN , 1978						13...	0930	27	15.0	--	1600
03...	1335	41	.0	--	1550	AUG					
FEB						09...	1300	33	18.0	--	1780
03...	0930	39	3.0	--	--	SEP					
27...	1400	38	4.5	--	1400	05...	1035	30	16.5	--	1620

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06431500 - SPEARFISH CR AT SPEARFISH SD (LAT 44 28 57 LONG 103 51 40)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
07...	1000	59	7.5	7.0	--
NOV					
01...	1015	47	4.0	5.0	440
DEC					
13...	1015	54	2.5	2.5	490
JAN , 1978					
03...	1015	46	.0	--	400
FEB					
27...	1015	49	1.0	--	510
MAR , 1978					
28...	1600	53	7.0	--	450
MAY					
02...	1100	138	6.5	--	320
30...	1600	92	10.0	--	410
JUL					
13...	1415	65	11.5	--	590
SEP					
11...	1330	50	11.0	--	475

06433000 - REDWATER RIVER ABOVE BELLE FOURCHE SD (LAT 44 40 02 LONG 103 50 20)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
11...	1415	172	8.0	8.0	--
NOV					
03...	1200	168	7.5	7.5	1300
30...	1630	174	3.0	--	1190
JAN , 1978					
05...	1000	132	.0	--	1750
FEB					
02...	--	128	.5	--	--
28...	1530	141	.0	--	1250
MAR					
29...	1045	188	18.0	--	1195
MAY , 1978					
10...	1500	491	14.0	--	1100
JUN					
02...	1200	254	13.5	--	1150
JUL					
11...	1330	87	23.0	--	1340
AUG					
09...	0950	55	19.5	--	1420
SEP					
07...	0815	76	18.5	--	1350

06433500 - HAY CR AT BELLE FOURCHE SD (LAT 44 40 01 LONG 103 50 46)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
NOV , 1977					
29...	1600	1.5	.0	4.5	--
MAR , 1978					
13...	1145	40	1.0	--	--
21...	1515	23	8.5	--	645
28...	0830	2.7	7.0	--	1750
MAY , 1978					
04...	1500	24	10.0	--	1600
JUN					
06...	1430	3.4	22.5	--	1880

06436000 - BELLE FOURCHE R NEAR FRUITDALE SD (LAT 44 41 27 LONG 103 44 14)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
11...	1530	5.6	8.0	8.0	--
NOV					
03...	1000	4.2	6.5	7.0	2550
DEC					
01...	1500	5.2	.5	-1.0	2525
JAN , 1978					
01...	1300	3.7	.5	--	2675
05...	1230	4.0	.0	-10.0	3000
FEB					
01...	1330	3.7	.5	--	2675
MAR					
01...	0830	3.3	.0	--	3000
MAR , 1978					
27...	1615	11	14.5	--	--
MAY					
11...	1000	2000	12.5	--	1100
JUN					
01...	1500	1900	13.5	--	1050
JUL					
11...	1200	14	25.0	--	1980
AUG					
07...	1640	17	28.0	--	1800
SEP					
07...	1115	15	23.5	--	1940

06436700 - INDIAN CR NEAR ARPAN SD (LAT 44 48 51 LONG 103 41 22)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
12...	1100	28	5.0	9.0	--
MAY , 1978					
10...	1730	293	15.0	--	950
12...	0930	69	12.0	--	1050
JUN					
06...	1230	13	22.5	--	2610
JUL , 1978					
11...	1000	32	21.0	--	1460
AUG					
08...	1445	.56	27.5	--	1440

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06438500 - CHEYENNE R NEAR PLAINVIEW SD (LAT 44 31 16 LONG 101 59 34)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977						APR , 1978					
18...	1045	240	9.5	10.5	--	10...	1115	453	4.0	8.0	--
NOV						MAY					
22...	1030	49	1.0	3.5	2620	02...	1200	1430	14.0	17.5	1680
DEC						JUN					
12...	1120	48	.0	8.0	3800	27...	1100	529	22.5	26.0	1950
JAN , 1978						JUL					
10...	1230	89	.0	-20.0	3000	25...	1305	1340	27.0	35.5	--
FEB						AUG					
16...	1145	94	.0	-10.0	2350	21...	1045	642	22.0	29.0	1600
MAR						SEP					
13...	1000	7500	.0	1.0	--	25...	1150	389	18.0	23.0	1940

06439000 - CHERRY CR NEAR PLAINVIEW SD (LAT 44 44 38 LONG 102 03 11)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977						MAY , 1978					
28...	1240	.45	10.5	15.0	--	31...	1425	51	16.0	13.0	1180
NOV						JUN					
22...	1230	.10	1.0	4.0	980	27...	1235	1.3	26.0	29.0	2520
MAR , 1978						JUL					
23...	1435	5500	2.0	3.0	260	25...	1435	119	27.0	33.0	--
APR						AUG					
10...	1330	81	4.0	9.0	--	21...	1225	18	25.0	30.0	1300
MAY											
02...	1435	164	14.5	17.5	915						

06441000 - BAD R NEAR MIDLAND SD (LAT 44 04 01 LONG 101 09 36)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977						MAY , 1978					
04...	1030	154	11.0	13.0	--	09...	0840	52	9.0	12.0	1020
NOV						JUN					
29...	0900	.59	.0	-3.0	2460	12...	0850	6.7	20.0	23.0	680
DEC						JUL					
27...	0945	.02	.0	-4.0	2570	10...	0945	.06	22.0	20.0	1600
MAR , 1978						AUG					
14...	1020	583	.0	7.0	370	07...	0930	.06	24.0	27.0	--
APR						SEP					
10...	1030	33	8.0	8.5	--	28...	0820	1.0	20.0	18.0	630

06442000 - MEDICINE KNOLL CR NEAR BLUNT SD (LAT 44 33 46 LONG 099 54 50)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
MAR , 1978						MAY , 1978					
20...	1230	1550	7.0	8.0	100	02...	1115	1.9	14.0	18.5	550
APR											
03...	1545	16	6.0	40.0	260						
13...	1430	.26	11.5	14.0	375						

06442500 - MEDICINE CR AT KENNEBEC SD (LAT 43 54 17 LONG 099 52 35)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977						MAY , 1978					
07...	1520	1.6	10.0	11.0	--	12...	1145	35	16.0	13.0	660
MAR , 1978						JUN					
14...	1350	383	1.0	4.0	--	15...	1130	.08	25.0	28.0	1030
16...	1240	1040	.5	-2.0	290	JUL					
21...	1550	1790	4.5	18.5	290	13...	1015	.19	21.0	23.5	1130
APR											
13...	1520	4.0	11.0	18.0	850						

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06442950 - CROW CR NEAR GANN VALLEY SD (LAT 43 59 29 LONG 099 13 07)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
MAR , 1978					
21...	1055	2880	1.0	10.5	200
APR					
13...	0935	13	7.0	8.5	620
MAY					
12...	0850	8.5	16.0	12.5	1060
JUN , 1978					
15...	0850	.08	22.0	23.0	1460
JUL					
12...	1620	.28	30.5	31.0	820

06445980 - WHITE CLAY CR NEAR OGLALA SD (LAT 43 08 46 LONG 102 40 58)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
03...	1100	5.4	12.0	19.0	570
26...	1130	6.9	8.0	17.5	515
NOV					
23...	1045	12	.5	-5.0	510
DEC					
19...	1100	11	.0	7.0	490
JAN , 1978					
17...	1145	9.3	.5	--	640
FEB					
13...	1245	7.9	.0	--	710
MAR					
16...	1045	73	.5	--	260
20...	1145	167	4.0	--	260
21...	0945	91	5.0	--	300
APR , 1978					
25...	0945	21	11.5	--	520
MAY					
25...	0900	15	19.0	--	580
JUN					
21...	0930	11	19.0	--	--
JUL					
17...	1200	5.8	24.0	--	570
AUG					
14...	1330	3.3	23.0	--	580
SEP					
18...	1045	3.7	13.0	--	645

06446000 - WHITE R NEAR OGLALA SD (LAT 43 15 17 LONG 102 49 29)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
03...	1330	7.4	11.5	21.0	--
26...	1430	7.2	13.5	10.0	--
NOV					
23...	1315	7.8	.5	-4.5	1500
DEC					
19...	1145	13	.0	8.0	1210
JAN , 1978					
17...	1500	5.2	.5	--	1080
FEB					
13...	1415	5.8	.0	--	1180
MAR					
16...	1330	1080	2.5	--	370
23...	1300	403	5.5	--	670
APR , 1978					
25...	1200	64	15.5	--	675
MAY					
25...	1200	66	19.0	--	655
JUN					
21...	1200	42	22.0	--	--
JUL					
17...	1345	35	27.0	--	625
AUG					
14...	1545	32	23.5	--	500
SEP					
18...	1250	4.1	14.0	--	585

06447000 - WHITE R NEAR KADOKA SD (LAT 43 45 09 LONG 101 31 28)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
31...	1220	26	12.0	10.0	720
JAN , 1978					
26...	0940	14	.0	-4.0	860
FEB					
28...	1140	4.8	.0	-10.0	790
MAR					
14...	1455	4840	1.0	4.0	230
MAY , 1978					
09...	1215	788	10.5	19.5	495
JUN					
12...	1255	110	24.0	24.0	700
JUL					
10...	1255	64	24.0	24.5	550
AUG					
28...	1130	1290	20.0	20.0	450

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06447500 - LITTLE WHITE R NEAR MARTIN SD (LAT 43 10 00 LONG 101 37 47)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
NOV , 1977					
01...	0750	16	5.0	30.0	240
29...	1610	17	.0	5.0	305
DEC					
28...	0900	9.8	.0	-7.0	130
JAN , 1978					
27...	0855	7.9	.0	-5.0	280
FEB					
28...	1620	8.3	.0	-10.0	250
MAR					
15...	1000	192	.5	1.0	190
MAY , 1978					
09...	1515	60	11.5	19.5	400
JUN					
13...	0935	17	16.0	23.0	510
JUL					
11...	0835	12	19.0	22.5	310
AUG					
29...	0810	9.7	13.0	14.0	430

06448000 - LAKE CR ABOVE REFUGE NEAR TUTHILL SD (LAT 43 05 07 LONG 101 36 04)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
31...	1540	19	12.0	10.0	100
NOV					
29...	1505	24	20.0	10.0	110
DEC					
28...	1050	19	.0	-1.0	130
JAN , 1978					
26...	1250	14	.0	-6.0	130
FEB					
28...	1515	28	.0	-9.0	105
MAR					
15...	1150	30	2.0	1.0	120
APR , 1978					
11...	0930	23	6.5	14.0	120
MAY					
10...	0750	24	9.0	14.5	130
JUN					
13...	0830	18	16.0	22.0	110
JUL					
11...	0935	15	18.5	23.0	100
AUG					
29...	0725	16	13.0	13.0	110

06449000 - LAKE CR BELOW REFUGE NEAR TUTHILL SD (LAT 43 08 46 LONG 101 30 38)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
31...	1425	4.2	10.0	9.0	550
NOV					
29...	1340	7.3	2.0	10.0	600
DEC					
27...	1545	36	2.5	-5.0	550
JAN , 1978					
26...	1440	11	1.0	-6.0	740
FEB					
28...	1345	5.3	2.0	-10.0	600
MAR					
16...	0845	16	2.0	-2.0	380
APR , 1978					
10...	1635	53	8.0	8.0	230
MAY					
10...	0925	59	13.0	15.5	300
JUN					
12...	1605	20	24.0	25.0	430
JUL					
10...	1535	14	23.0	25.5	440
AUG					
28...	0940	4.6	23.0	20.0	230

06449100 - LITTLE WHITE R NEAR VETAL SD (LAT 43 06 03 LONG 101 13 49)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
NOV , 1977					
01...	0945	33	5.0	6.0	400
30...	0745	46	.5	2.0	350
DEC					
28...	1320	59	.0	1.0	490
JAN , 1978					
26...	1135	32	.0	-5.0	430
MAR					
01...	0845	13	.0	-2.0	420
APR					
11...	1120	126	9.0	19.0	380
MAY , 1978					
10...	1130	132	14.5	26.0	370
JUN					
13...	1245	86	23.0	26.0	440
JUL					
11...	1145	41	23.5	29.0	420
AUG					
29...	1000	33	14.0	16.0	370

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06449400 - ROSEBUD CR AT ROSEBUD SD (LAT 43 14 09 LONG 100 51 12)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
NOV , 1977					
01...	1415	7.8	9.0	9.0	400
30...	1115	7.8	3.0	4.0	400
DEC					
29...	1100	6.0	.0	.0	400
JAN , 1978					
30...	1045	7.2	.0	-3.0	400
MAR					
01...	1235	7.0	.0	-7.0	380
16...	1355	11	3.5	4.5	310
APR , 1978					
11...	1450	8.8	12.0	25.0	370
MAY					
10...	1550	9.5	16.0	23.5	340
JUN					
13...	1540	.09	23.0	27.0	690
JUL					
11...	1545	8.7	25.0	32.0	370
AUG					
29...	1425	7.8	18.0	20.0	350

06449500 - LITTLE WHITE R NEAR ROSEBUD SD (LAT 43 19 32 LONG 100 53 00)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
NOV , 1977					
01...	1235	84	5.0	14.0	350
30...	1000	112	.0	4.0	320
DEC					
28...	1545	94	.0	1.5	420
JAN , 1978					
30...	1320	69	.0	-1.0	380
MAR					
01...	1120	75	.0	-7.0	360
15...	1230	720	.5	.0	180
APR , 1978					
11...	1320	199	11.0	21.5	320
MAY					
10...	1440	203	17.5	23.5	340
JUN					
14...	0825	126	26.0	25.0	370
JUL					
11...	1445	85	28.0	32.0	350
AUG					
29...	1315	80	16.0	20.0	340

06450500 - LITTLE WHITE R BELOW WHITE RIVER SD (LAT 43 36 04 LONG 100 44 52)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
NOV , 1977					
02...	0815	89	4.0	7.0	340
30...	1400	115	.0	8.0	340
DEC					
29...	0910	383	.0	-9.0	480
MAR , 1978					
01...	1505	90	.0	-6.0	360
16...	1630	2040	.0	1.0	210
APR					
12...	0835	217	8.0	7.5	370
MAY , 1978					
11...	0705	213	14.0	8.5	390
JUN					
14...	1035	137	25.0	29.0	440
JUL					
12...	0805	78	23.0	21.0	370
AUG					
30...	0805	82	17.0	15.0	370

06464500 - KEYA PAHA R AT WEWELA SD (LAT 43 01 42 LONG 099 46 45)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
NOV , 1977					
02...	1200	38	5.0	18.0	520
DEC					
01...	0830	52	.0	-2.5	480
29...	1525	31	.0	1.5	550
JAN , 1978					
31...	1025	16	.0	-12.0	400
MAR					
02...	0915	18	.0	-12.0	520
20...	1635	2300	3.5	11.5	190
27...	1500	288	10.5	25.0	330
APR , 1978					
12...	1325	156	12.0	16.0	470
MAY					
11...	1325	149	18.5	22.0	500
JUN					
14...	1515	66	26.0	30.0	590
JUL					
12...	1200	52	26.0	26.0	470
SEP					
06...	1150	18	23.0	31.0	490

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
06471500 - ELM R AT WESTPORT SD (LAT 45 39 22 LONG 098 29 48)					
NOV , 1977					
10...	1150	20	.5	-5.0	850
DEC					
07...	1150	5.1	.0	-12.0	880
JAN , 1978					
05...	1415	7.7	.0	-7.0	1020
FEB					
09...	1210	2.2	.0	-7.0	1260
MAR					
08...	1230	2.6	.0	-3.0	1250
APR , 1978					
06...	1330	486	7.5	19.0	300
JUL					
06...	1315	684	28.0	28.0	410
19...	1245	84	26.0	22.0	710
AUG					
17...	0855	6.8	21.5	20.0	890
SEP					
14...	1115	1.0	16.0	18.0	1020
06471898 - MOCCASIN CR NEAR WARNER SD (LAT 45 17 55 LONG 098 29 42)					
NOV , 1977					
10...	1245	3.4	1.0	1.0	1240
APR , 1978					
07...	1010	126	7.5	2.0	390
11...	1420	69	9.0	14.0	520
MAY					
05...	1120	21	13.5	15.5	1300
23...	1510	12	22.0	27.0	1080
JUN					
21...	0815	4.1	16.0	17.0	1780
JUL , 1978					
05...	1420	85	27.0	31.5	1250
18...	1625	45	26.0	29.0	1300
AUG					
16...	1055	4.7	21.0	22.0	2580
SEP					
13...	1325	6.2	22.0	24.0	1950
06473000 - JAMES R AT ASHTON SD (LAT 45 00 02 LONG 098 28 57)					
NOV , 1977					
08...	1310	.04	4.5	.0	920
DEC					
06...	1430	.10	.0	-20.0	630
APR , 1978					
11...	0940	1320	6.5	5.0	310
MAY					
03...	1620	1280	16.0	18.5	510
23...	1120	849	19.0	19.0	570
JUN , 1978					
19...	1510	335	23.5	29.0	770
JUL					
18...	1120	438	26.0	26.0	730
AUG					
15...	1630	381	19.0	18.5	880
SEP					
13...	0955	71	22.0	20.0	980
06467500 - MISSOURI R AT YANKTON SD (LAT 42 51 58 LONG 097 23 37)					
OCT , 1977					
06...	1115	31400	15.5	9.0	--
18...	1545	31700	12.0	15.0	--
NOV					
02...	1130	31400	1.3	13.0	--
17...	1540	31100	7.5	--	--
APR , 1978					
11...	1645	20500	9.5	--	--
MAY					
02...	1620	27800	9.5	18.5	730
18...	1530	30300	15.0	23.0	730
JUN					
15...	1800	39800	20.0	33.5	600
JUN , 1978					
27...	1315	42300	23.0	29.0	600
JUL					
10...	1745	44800	22.0	27.0	610
27...	1745	52000	24.0	30.0	650
AUG					
10...	1800	52600	25.0	31.0	680
23...	1720	52700	22.5	35.5	670
SEP					
06...	1515	51600	25.0	38.5	870
27...	1230	52200	18.0	22.5	730
06471200 - MAPLE R AT ND-SD STATE LINE (LAT 45 56 20 LONG 098 27 08)					
APR , 1978					
06...	1055	201	9.0	17.0	340
12...	1120	118	6.0	2.0	540
MAY					
04...	1010	44	14.0	15.0	800
24...	0850	31	20.0	23.0	1100
JUL					
06...	0950	227	28.6	26.0	390
JUL , 1978					
19...	1915	31	26.0	22.0	770
AUG					
16...	1640	1.4	26.0	30.0	1080
SEP					
14...	0910	.03	16.0	17.0	1190

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06473700 - SNAKE CR NEAR ASHTON SD (LAT 45 01 50 LONG 098 34 26)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
APR , 1978						JUL , 1978					
11...	1200	285	8.5	6.0	385	18...	1400	74	26.0	28.0	640
MAY						AUG					
03...	1740	79	18.0	18.0	610	16...	0850	23	20.0	19.5	570
23...	1310	3.6	22.0	25.0	800	SEP					
JUN						13...	1050	14	22.0	20.0	750
19...	1615	44	23.5	29.0	765						

06473750 - WOLF CR NEAR REE HEIGHTS SD (LAT 44 36 25 LONG 099 13 54)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
APR , 1978						MAY , 1978					
10...	1115	13	7.5	9.0	155	02...	1405	29	17.0	17.5	110

06474000 - TURTLE CR NEAR TULARE SD (LAT 44 44 06 LONG 098 35 09)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
APR , 1978						JUL , 1978					
10...	1430	97	9.0	8.5	270	17...	1445	.24	26.0	38.0	840
MAY						AUG					
03...	0935	34	14.5	11.5	470	15...	1210	.05	24.0	19.0	820
22...	1525	9.5	22.0	27.0	430	SEP					
JUN						12...	1320	.02	23.0	24.0	1010
19...	1430	8.3	22.0	28.0	800						

06474300 - MEDICINE CR NEAR ZELL SD (LAT 44 45 52 LONG 098 42 13)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977						JUN , 1978					
11...	1315	.02	7.0	8.0	1920	19...	1330	3.2	22.0	27.0	670
NOV						JUL					
08...	1125	.04	5.0	1.0	1680	17...	1300	.08	26.0	38.0	1570
APR , 1978						AUG					
10...	1325	11	9.5	8.5	445	15...	1150	.06	22.0	18.5	1870
MAY						SEP					
02...	1650	4.7	19.0	20.0	820	12...	1240	.02	22.0	23.0	2010
22...	1415	1.4	22.0	26.0	1260						

06475000 - JAMES R NEAR REDFIELD SD (LAT 44 55 13 LONG 098 25 52)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
APR , 1978						JUL , 1978					
10...	1730	1840	8.0	9.0	340	18...	0920	521	25.0	21.0	850
MAY						AUG					
03...	1210	1470	15.0	18.0	510	15...	1505	400	19.0	19.0	880
23...	0930	945	19.0	15.0	540	SEP					
JUN						12...	1545	108	22.0	26.0	1100
19...	1340	387	23.5	28.0	780						

06476500 - SAND CR NEAR ALPENA SD (LAT 44 09 15 LONG 098 26 06)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
MAR , 1978						MAY , 1978					
22...	1230	741	3.0	8.5	240	17...	1735	3.0	18.5	16.5	1350
24...	1030	507	.0	3.0	--	JUN					
27...	1125	131	1.0	16.0	--	20...	1040	.24	18.0	17.0	1100
APR											
13...	1110	10	8.0	10.5	615						

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06477000 - JAMES R NEAR FORESTBURG SD (LAT 43 58 26 LONG 098 04 14)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
13...	0905	.47	6.5	2.5	--
NOV					
17...	1500	9.4	4.5	6.0	1470
DEC					
13...	0925	1.4	.5	1.0	2650
JAN , 1978					
19...	1005	.49	.0	-2.5	1950
FEB					
28...	0920	.52	.0	-1.4	3060
MAR					
15...	0850	2.3	.0	-.4	1120
23...	1600	2620	2.5	--	--
APR , 1978					
14...	0930	2860	9.0	9.5	380
MAY					
17...	0930	1270	14.0	14.5	640
JUN					
20...	1330	404	19.0	18.0	730
JUL					
21...	1005	453	25.0	20.5	730
AUG					
30...	1315	217	22.5	28.0	820
SEP					
29...	1205	58	17.5	19.0	960

06477500 - FIRESTEEL CR NEAR MOUNT VERNON SD (LAT 43 46 30 LONG 098 14 33)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
12...	1600	.04	11.5	14.0	1830
NOV					
16...	1425	.47	4.0	6.0	1850
DEC					
12...	1610	.02	.0	4.0	2600
MAR , 1978					
14...	1630	77	.5	1.0	240
21...	1535	2070	3.0	15.5	265
23...	1750	1050	3.0	--	--
28...	1445	125	9.0	--	330
APR , 1978					
13...	1305	12	8.5	11.0	1060
MAY					
18...	1015	11	15.0	17.5	1410
JUN					
20...	1530	3.1	21.0	21.0	920
JUL					
21...	0750	.47	21.5	16.5	1260
SEP					
29...	0905	.01	13.0	12.0	2350

06478052 - ENEMY CR NEAR MITCHELL SD (LAT 43 38 33 LONG 097 59 09)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
12...	1710	1.1	10.0	13.0	1300
NOV					
16...	1300	2.5	4.0	6.0	1100
DEC					
12...	1450	.11	.5	4.5	2430
JAN , 1978					
18...	1450	.01	.0	-1.4	2460
FEB					
27...	1420	.01	.0	-.6	2840
MAR					
14...	1425	3.4	.5	1.0	550
21...	1305	608	2.0	11.0	275
23...	1025	177	3.0	--	--
MAR , 1978					
24...	1005	99	3.5	--	--
APR					
13...	1505	15	10.0	14.5	1960
MAY					
18...	0840	6.3	15.0	13.5	2110
JUN					
21...	0745	.30	20.0	15.0	1220
JUL					
20...	1445	.01	26.5	25.0	1400
AUG					
31...	0905	.10	19.5	16.0	1580

06478390 - WOLF CR NEAR CLAYTON SD (LAT 43 22 18 LONG 097 36 12)

DATE	TIME	STREAM-FLOW, INSTAN-TANEOUS (CFS) (00061)	TEMPER-ATURE (DEG C) (00010)	TEMPER-ATURE, AIR (DEG C) (00020)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)
OCT , 1977					
12...	1230	10	7.0	10.0	1340
NOV					
16...	1115	15	1.5	3.0	1000
DEC					
13...	1620	3.2	.0	4.5	2680
JAN , 1978					
20...	1005	.90	.0	-2.6	1020
FEB					
28...	1610	1.6	.0	-.9	2490
MAR					
16...	1055	221	.5	-.1	300
21...	1000	834	1.0	7.0	265
22...	1635	892	3.0	--	--
24...	1315	551	4.5	--	330
APR , 1978					
04...	1440	46	9.0	8.5	1050
MAY					
18...	1545	14	14.5	20.0	1570
JUN					
21...	1300	3.5	19.5	26.5	1920
JUL					
17...	1250	12	18.0	32.0	930
AUG					
25...	1050	3.0	23.0	24.0	1480
SEP					
27...	1730	5.6	17.5	22.0	1380

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06478540 - LITTLE VERMILLION R NEAR SALEM SD (LAT 43 47 39 LONG 097 22 02)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
MAR , 1978					
20...	0805	494	1.0	3.0	140
23...	1245	178	3.5	--	--
28...	1145	32	9.0	--	245
APR					
11...	1715	9.8	14.0	17.0	390
MAY , 1978					
16...	1400	1.8	18.5	19.0	950
JUN					
23...	1220	1.6	19.0	23.0	770

06478690 - WEST FORK VERMILLION R NEAR PARKER SD (LAT 43 24 55 LONG 097 12 18)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
14...	1040	14	9.0	9.0	--
NOV					
18...	1110	56	1.0	2.0	1380
DEC					
12...	1105	2.1	.0	1.0	2020
JAN , 1978					
18...	1100	.52	.0	-1.0	1400
FEB					
27...	1010	.10	.0	-.5	1760
MAR					
14...	1025	1.2	.0	-.0	560
20...	1450	1270	2.0	5.0	205
MAR , 1978					
22...	1435	1460	3.0	--	--
MAY					
16...	1120	18	14.0	18.0	1520
JUN					
23...	0940	32	18.0	21.0	980
JUL					
20...	0935	4.8	18.0	21.0	990
AUG					
25...	1215	2.3	24.0	27.0	1310
SEP					
28...	1010	2.2	13.0	15.5	1550

06479000 - VERMILLION R NEAR WAKONDA SD (LAT 42 59 27 LONG 096 57 49)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
14...	1330	22	10.5	17.0	730
NOV					
18...	1430	2.4	2.0	7.0	870
DEC					
14...	1040	7.6	.0	-.0	1550
JAN , 1978					
20...	1415	.43	.0	-1.5	1380
MAR					
01...	1025	.47	.0	-1.3	1080
16...	1445	1.5	.5	1.5	665
20...	1645	1870	2.5	--	--
21...	1635	2630	3.0	--	--
25...	1355	2380	4.5	--	340
APR , 1978					
11...	1030	538	9.5	12.0	790
MAY					
22...	1020	75	16.0	20.5	1360
JUN					
22...	1645	42	20.0	22.0	1040
JUL					
18...	1440	79	27.5	24.5	940
AUG					
23...	1040	47	22.0	26.0	1090
SEP					
26...	1610	36	18.0	25.0	1180

06479438 - BIG SIOUX R NEAR WATERTOWN SD (LAT 45 00 22 LONG 097 09 53)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
04...	0940	.66	10.0	12.0	--
NOV					
02...	0850	4.7	5.5	4.0	650
DEC					
01...	0955	8.6	.0	-.5	810
JAN , 1978					
05...	0945	1.1	.0	-1.5	770
MAR					
08...	1055	.18	.0	-.7	650
APR					
01...	1040	2490	2.5	--	145
02...	1155	864	1.5	--	195
03...	1020	364	2.0	--	210
APR , 1978					
13...	0935	245	2.0	4.5	510
MAY					
03...	1305	68	15.0	17.0	640
31...	1535	132	17.0	12.0	705
JUN					
26...	1600	8.1	23.5	22.0	550
AUG					
02...	0820	6.1	17.0	13.0	580
28...	1645	145	20.0	22.0	260
SEP					
07...	1455	7.9	23.0	35.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06479515 - WILLOW CR NEAR WATERTOWN SD (LAT 44 54 17 LONG 097 03 31)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
04...	1600	3.0	12.0	15.0	--
NOV					
02...	1035	11	6.0	8.0	1080
DEC					
12...	1210	6.6	.0	-.4	1090
JAN , 1978					
05...	1130	1.8	.0	-1.0	1080
FEB					
07...	1045	.10	.0	-1.4	760
MAR					
08...	1425	.51	.0	-.7	1070
28...	0925	716	1.0	2.0	220
APR , 1978					
01...	1300	389	2.5	--	205
13...	1740	95	5.0	5.0	540
MAY					
03...	1435	63	15.5	19.5	650
31...	1655	60	17.0	12.5	730
JUN					
27...	1010	5.2	22.0	21.0	740
AUG					
02...	1540	2.5	20.5	22.0	760
SEP					
07...	1630	2.3	26.0	35.5	820

06479529 - STRAY HORSE CR NEAR CASTLEWOOD SD (LAT 44 43 52 LONG 096 57 23)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
05...	1100	1.9	9.0	6.0	620
NOV					
01...	1650	23	9.0	7.5	840
DEC					
01...	1655	5.8	.0	-.5	1040
JAN , 1978					
04...	1630	1.0	.0	-.9	1140
FEB					
07...	1605	.28	.0	-1.3	1100
MAR					
09...	1155	.06	.5	1.0	1220
27...	1505	437	1.0	12.0	200
28...	1245	488	1.5	4.5	175
APR , 1978					
01...	1710	201	2.5	--	250
12...	1545	81	5.0	5.5	680
MAY					
03...	1600	16	17.0	--	860
31...	1125	36	16.0	12.0	950
JUN					
27...	1715	5.0	27.0	26.5	720
AUG					
01...	1520	.36	22.0	23.5	890
SEP					
07...	1025	.48	22.0	28.0	880

06479640 - HIDEWOOD CR NEAR ESTELLINE SD (LAT 44 36 42 LONG 096 54 17)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
03...	1700	4.0	14.0	13.5	540
NOV					
01...	1520	55	8.5	7.5	850
30...	1715	10	.0	-.2	1120
JAN , 1978					
04...	1510	5.3	.0	-.9	1140
FEB					
06...	1705	1.4	.0	-1.3	1120
MAR					
07...	1620	1.4	.0	-.2	950
27...	1350	477	1.0	12.0	205
29...	1015	902	1.0	3.0	185
31...	1500	1220	2.5	--	220
APR , 1978					
01...	1540	932	3.0	--	265
14...	1040	201	3.5	4.5	545
MAY					
02...	1650	101	15.0	15.5	710
31...	1250	95	16.0	12.0	820
JUN					
28...	1355	30	25.0	27.0	700
AUG					
01...	1400	3.4	22.0	22.0	860
SEP					
07...	0925	1.3	21.5	27.0	950

06479910 - SIXMILE CR NR BROOKINGS SD (LAT 44 20 46 LONG 096 44 51.01)

DATE	TIME	STREAMFLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
03...	1335	1.2	13.0	15.0	--
NOV					
01...	1310	2.6	8.0	8.0	950
30...	1455	1.6	.0	4.5	930
JAN , 1978					
06...	0945	.31	.0	-.6	1000
FEB					
08...	0830	.21	.0	-1.5	920
MAR					
09...	1415	.05	.0	3.0	760
22...	1335	236	1.0	7.0	150
27...	1215	631	4.0	5.0	175
31...	1230	491	5.0	--	220
APR , 1978					
12...	0930	32	5.0	4.5	705
MAY					
02...	1335	13	14.0	14.5	780
30...	1500	12	18.5	21.5	950
JUN					
29...	0910	1.7	24.5	25.5	800
AUG					
03...	0845	.54	12.5	11.0	850
SEP					
06...	1555	.01	28.5	35.5	930

MISCELLANEOUS TEMPERATURE MEASUREMENTS AND FIELD DETERMINATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

06480000 - BIG SIOUX RIVER NEAR BROOKINGS SD (LAT 44 10 48 LONG 096 44 55)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
03...	1215	53	11.5	12.0	--
NOV					
01...	1110	64	3.5	5.0	960
30...	1230	109	.0	3.0	550
JAN , 1978					
04...	1220	37	.0	-.9	1090
FEB					
06...	1355	12	.0	-1.5	1040
MAR					
07...	1245	12	.0	-.1	990
22...	1205	1420	1.0	6.0	290
23...	0900	2840	1.0	-.1	340
24...	1310	3730	2.0	4.0	320
APR , 1978					
11...	1025	1390	8.0	9.0	550
MAY					
02...	1220	713	13.0	12.5	780
30...	1320	560	18.0	20.0	760
JUN					
29...	1145	183	26.5	28.5	740
AUG					
03...	1020	73	17.0	16.0	800
SEP					
06...	1440	83	25.0	33.0	580

06481500 - SKUNK CR AT SIOUX FALLS SD (LAT 43 32 01 LONG 096 47 26)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
06...	1210	4.1	10.5	10.0	--
NOV					
02...	1720	3.7	8.5	10.0	1080
DEC					
02...	1350	9.2	.5	-.4	1300
JAN , 1978					
06...	1550	2.6	.0	-.3	1250
FEB					
08...	1345	1.1	.0	-1.0	1100
MAR					
10...	1430	1.9	.5	2.0	910
17...	1345	242	1.0	.5	320
20...	1205	1820	1.0	6.0	240
MAR , 1978					
21...	1645	1300	3.0	13.0	245
23...	1610	840	5.0	3.0	285
MAY					
05...	1205	57	11.0	13.0	1010
JUN					
02...	1200	98	14.5	19.0	1110
30...	1235	14	29.0	28.5	1000
AUG					
04...	1040	26	18.0	18.0	950
SEP					
06...	1130	4.6	23.0	32.0	1040

06482610 - SPLITROCK CR AT CORSON SD (LAT 43 36 59 LONG 096 33 54.01)

DATE	TIME	STREAM-FLOW, INSTANTANEOUS (CFS) (00061)	TEMPERATURE (DEG C) (00010)	TEMPERATURE, AIR (DEG C) (00020)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)
OCT , 1977					
06...	0935	32	9.5	7.0	--
NOV					
03...	0915	28	7.0	9.0	790
DEC					
02...	1130	51	.0	-.4	830
JAN , 1978					
06...	1425	23	.0	-.3	840
FEB					
08...	1150	1.5	.0	-1.3	800
MAR					
10...	1205	13	.0	15.0	820
17...	1320	595	1.0	.0	230
MAR , 1978					
21...	1330	2080	3.0	13.0	210
23...	1220	1440	5.0	5.0	225
MAY					
04...	1220	91	13.5	17.5	800
JUN					
02...	0950	249	13.0	19.0	570
29...	1700	23	33.0	34.5	540
AUG					
03...	1630	36	21.0	18.5	450
SEP					
05...	1630	8.8	27.0	33.5	530

BEADLE COUNTY

442112098174001. Local number, 110N62W 9BCCC.
LOCATION.--Lat 44°21'12", long 98°17'40", Hydrologic Unit 10160006, at southwest corner of city well field, 3.5 mi (5.6 km) west of Huron.
Owner: City of Huron.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled unused public supply artesian well, diameter 12 in (0.305 m), depth 74 ft (22.6 m), perforated 38 to 74 ft (11.6 to 22.6 m).
DATUM.--Land-surface datum is 1,306.93 ft (398.352 m) above mean sea level. Measuring point: Top of platform 2.00 ft (0.610 m) above land-surface datum.
PERIOD OF RECORD.--February 1954 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 10.81 ft (3.295 m) below land-surface datum, Feb. 5, 1954, lowest, 43.60 ft (13.289 m) below land-surface datum, Aug. 27, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	36.43	34.34	32.53	30.86	30.16	28.94	28.44	27.22	27.22	32.30	41.91	40.29
10	35.84	33.81	32.47	30.87	29.68	28.77	28.23	26.88	27.62	34.47	41.98	39.74
15	35.74	33.42	31.80	30.52	29.32	28.75	28.25	26.86	27.54	36.19	42.54	39.28
20	35.20	33.23	31.83	30.38	29.09	28.68	27.82	27.02	28.05	38.21	42.39	40.67
25	34.91	33.25	31.53	29.80	29.08	28.92	27.66	26.68	28.86	40.23	42.03	38.53
EOM	34.38	32.67	31.29	29.82	29.02	28.43	27.47	26.47	30.08	41.60	41.27	38.48

WTR YR 1978 HIGH 26.47 MAY 31 LOW 42.67 AUG 19

443000098005001. Local number, 112N60W22AAAA.
LOCATION.--Lat 44°30'00", long 98°00'50", Hydrologic Unit 10160006, 5 mi (8 km) north of Yale.
Owner: South Dakota Department of Natural Resource Development.
AQUIFER.--Tulare.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 1.25 in (0.0318 m), depth 99 ft (30.2 m), cased to 99 ft (30.2 m).
DATUM.--Altitude of land-surface datum is 1,332 ft (406 m). Measuring point: Top of casing 1.20 ft (0.366 m) above land-surface datum.
PERIOD OF RECORD.--June 1960, March 1962 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 19.6 ft (5.974 m) below land-surface datum, June 1, 1978; lowest measured, 27.8 ft (8.47 m) below land-surface datum, Nov. 30, 1976.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 5	27.7	DEC 12	27.23	MAR 15	27.4	MAY 8	20.5	JUN 28	21.6	AUG 23	26.3
NOV 3	27.7	JAN 20	27.5	MAR 16	27.22	JUN 1	19.6	AUG 1	25.4	SEP 21	26.8
NOV 30	27.4										

443758098225701. Local number, 113N63W 2BBBB.
LOCATION.--Lat 44°37'58", long 98°22'57", Hydrologic Unit 10160006, 1.0 mi (1.6 km) east of Hitchcock.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Tulare.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.102 m), depth 71 ft (21.6 m), perforated 19 to 71 ft (5.8 to 21.6 m).
DATUM.--Land-surface datum is 1,307.81 ft (398.620 m) above mean sea level. Measuring point: Top of casing 2.20 ft (0.671 m) above land-surface datum (since August 1973).
PERIOD OF RECORD.--February 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.09 ft (7.647 m) below land-surface datum, Oct. 11, 1973; lowest measured, 28.03 ft (8.544 m) below land-surface datum, Feb. 16, 1953.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 15	26.83	MAY 3	26.53	JUN 22	26.32	SEP 13	26.40

BON HOMME COUNTY

425643097571001. Local number, 94N60W21BCCC.
LOCATION.--Lat 42°56'43", long 97°57'10", Hydrologic Unit 10170101, 7 mi (11 km) southwest of Tyndall.
Owner: U.S. Geological Survey.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 3 in (0.08 m), depth 64 ft (19.5 m), sandpoint 56 to 64 ft (17.1 to 19.5 m).
DATUM.--Land-surface datum is 1,334.52 ft (406.762 m) above mean sea level. Measuring point: Top of recorder platform 2.50 ft (0.762 m) above land-surface datum.
PERIOD OF RECORD.--1966-68, 1970 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 18.66 ft (5.688 m) below land-surface datum, June 10, 1972; lowest, 27.39 ft (8.351 m) below land-surface datum, Nov. 1, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	27.22	26.81	25.86	26.33	26.70	26.87	22.54	22.01	22.38	23.40	21.92	23.05
10	27.23	26.91	26.05	---	26.71	26.90	22.44	22.12	22.60	23.10	22.15	23.20
15	27.30	26.31	26.06	---	26.75	26.95	22.31	22.23	22.87	22.92	22.34	23.38
20	27.30	25.42	26.15	---	26.80	26.50	22.16	22.51	23.09	23.08	22.58	23.57
25	27.37	25.61	26.18	---	26.84	24.50	22.00	22.62	23.17	21.34	22.65	23.73
EOM	27.36	25.76	26.27	26.63	26.86	23.05	21.89	22.68	23.20	21.45	22.90	23.83

WTR YR 1978 HIGH 21.08 JUL 28 LOW 27.39 NOV 1

BROWN COUNTY

451947098355201. Local number, 121N65W 1AAAA (Three Wells No. 1, West).
LOCATION.--Lat 45°19'47", long 98°35'52", Hydrologic Unit 10160003, 5 mi (8 km) west of Warner.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Middle James.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 1 in (0.025 m), depth 144 ft (43.9 m), perforated 60 to 144 ft (18.3 to 43.9 m).
DATUM.--Land-surface datum is 1,336.73 ft (407.435 m) above mean sea level. Measuring point: Top of casing 2.20 ft (0.671 m) above land-surface datum.
PERIOD OF RECORD.--February 1952 to March 1958, September 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 25.96 ft (7.913 m) below land-surface datum, Sept. 13, 1967; lowest measured, 33.45 ft (10.198 m) below land-surface datum, Sept. 12, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	31.15	APR 20	30.83	JUN 23	32.32	JUL 11	31.5	AUG 18	36.3	SEP 12	33.45
MAR 15	31.15	MAY 15	30.9	JUN 26	32.5	JUL 28	33.1	SEP 8	33.7	SEP 29	32.3

451946098292201. Local number, 122N64W36CCDD (Warner Pt 12).
LOCATION.--Lat 45°19'46", long 98°29'22", Hydrologic Unit 10160003, at Warner.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Lake Sediments.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.102 m), depth 48 ft (14.6 m), perforated 6 to 48 ft (1.8 to 14.6 m).
DATUM.--Land-surface datum is 1,298.70 ft (395.844 m) above mean sea level. Measuring point: Top of casing 2.00 ft (0.610 m) above land-surface datum.
PERIOD OF RECORD.--February 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 9.70 ft (2.957 m) below land-surface datum, May 4, 1978; lowest measured, 24.44 ft (7.449 m) below land-surface datum, Apr. 1, 1968.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 16	22.82	MAY 4	9.70	JUN 23	13.43	SEP 12	16.88

CAMPBELL COUNTY

454327100013601. Local number, 126N76W15CCCC (R-83).
LOCATION.--Lat 45°43'27", long 100°01'36", Hydrologic Unit 10130106, 2 mi (3 km) east of Mound City.
Owner: U.S. Geological Survey.
AQUIFER.--Grand.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 1.25 in (0.0318 m), depth 237 ft (72.2 m), screened 234 to 237 ft (71.3 to 72.2 m).
DATUM.--Altitude of land-surface datum is 1,688 ft (515 m). Measuring point: Top of casing 4.60 ft (1.402 m) above land-surface datum.
PERIOD OF RECORD.--May 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.27 ft (4.654 m) below land-surface datum, Jan. 17, 1973; lowest measured, 34.25 ft (10.439 m) below land-surface datum, Sept. 28, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	31.76	DEC 22	28.53	FEB 21	26.59	MAY 10	24.48	JUL 5	26.08	AUG.29	30.20
NOV 28	29.71	JAN 19	27.66	MAR 22	25.87	JUN 5	26.23	AUG 1	27.30	SEP 27	31.06

CLAY COUNTY

430223096590001. Local number, 95N52W21AAAA (CU-66A).
LOCATION.--Lat 43°02'23", long 96°59'00", Hydrologic Unit 10170102, 5 mi (8 km) south of Centerville.
Owner: South Dakota Department of Natural Resource Development.
AQUIFER.--Lower Vermillion-Missouri.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in (0.051 m), depth 84 ft (25.6 m), cased to 84 ft (25.6 m), open end.
DATUM.--Altitude of land-surface datum is 1,231 ft (375 m). Measuring point: Top of casing 2.20 ft (0.671 m) above land-surface datum.
PERIOD OF RECORD.--July 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 52.40 ft (15.972 m) below land-surface datum, Apr. 25, 1969; lowest measured, 60.94 ft (18.575 m) below land-surface datum, Aug. 29, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 20	60.54	DEC 15	60.12	APR 27	55.27	JUN 7	56.0	JUL 11	56.35	AUG 28	56.7
OCT 26	60.7	JAN 30	60.18	MAY 9	56.0	JUN 20	57.0	JUL 21	57.1	SEP 22	57.2
NOV 28	60.52	FEB 16	60.32	MAY 22	56.8	JUN 22	56.62	AUG 8	55.7	SEP 26	56.93
DEC 14	60.4	MAR 30	55.78	MAY 23	56.19	JUL 7	57.2	AUG 23	56.00		

HAND COUNTY

444828098433901. Local number, 115N66W 2AAAA (Cottonwood Deep).
LOCATION.--Lat 44°48'28", long 98°43'39", Hydrologic Unit 10160009, 2 mi (3 km) west of Cottonwood Lake.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in (0.101 m), depth 62 ft (18.9 m), perforated 40 to 62 ft (12.2 to 18.9 m).
DATUM.--Land-surface datum is 1,359.65 ft (414.421 m) above mean sea level. Measuring point: Top of casing 3.30 ft (1.006 m) above land-surface datum.
PERIOD OF RECORD.--January 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 20.20 ft (6.157 m) below land-surface datum, July 31, 1953; lowest measured, 27.86 ft (8.491 m) below land-surface datum, Mar. 14, 1978.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
DEC 15	27.68	MAR 14	27.86	MAY 3	27.51	JUN 20	26.90	SEP 12	26.15

MINNEHAHA COUNTY

434540096461501. Local number, 104N49W31CCCC (S-26).
LOCATION.--Lat 43°45'40", long 96°46'15", Hydrologic Unit 10170203, 1.0 mi (1.6 km) west of Baltic.
Owner: South Dakota Department of Natural Resource Development.
AQUIFER.--Big Sioux.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 1.25 in (0.0318 m), depth 26 ft (7.9 m).
DATUM.--Altitude of land-surface datum is 1,465.09 ft (446.559 m) above mean sea level. Measuring point: Top of casing 1.70 ft (0.518 m) above land-surface datum.
PERIOD OF RECORD.--April 1957 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 4.63 ft (1.411 m) below land-surface datum, May 23, 1969; lowest measured, 15.27 ft (4.654 m) below land-surface datum, July 29, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 26	14.14	JAN 24	12.30	APR 25	6.85	JUN 13	7.0	AUG 1	8.9	SEP 25	10.62
NOV 23	12.93	FEB 15	12.59	MAY 8	6.2	JUL 6	8.21	AUG 22	9.31		
DEC 13	12.2	MAR 15	12.6	MAY 25	6.60	JUL 21	8.3	SEP 12	10.4		

SANBORN COUNTY

440040097555001. Local number, 106N59W 5DDDD (SM 66J).
LOCATION.--Lat 44°00'40", long 97°55'50", Hydrologic Unit 10160011, at Artesian, at west edge of city limits.
Owner: South Dakota Department of Natural Resource Development.
AQUIFER.--Floyd.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 2 in (0.051 m) depth 147 ft (44.8 m), cased to 147 ft (44.8 m), open end.
DATUM.--Land-surface datum is 1,313.62 ft (400.391 m) above mean sea level. Measuring point: Top of casing 2.20 ft (0.671 m) above land-surface datum.
REMARKS.--Prior to 1976, described as "near" Artesian.
PERIOD OF RECORD.--June 1966 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 7.50 ft (2.286 m) below land-surface datum, June 27, 1968; lowest measured, 12.5 ft (3.81 m) below land-surface datum, Sept. 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	12.3	FEB 22	11.50	MAY 31	11.5	AUG 3	11.8	AUG 21	11.8	SEP 13	11.9
DEC 12	11.82	MAR 17	11.5	JUN 27	11.5						

440600098151001. Local number, 107N62W10AAAA (S67D).
LOCATION.--Lat 44°06'00", long 98°15'10", Hydrologic Unit 10160011, 4 mi (6 km) north of Woonsocket.
Owner: South Dakota Department of Natural Resource Development.
AQUIFER.--Warren.
WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 2 in (0.051 m), depth 13 ft (4.0 m), cased to 13 ft (4.0 m), open end.
DATUM.--Land-surface datum is 1,298.98 ft (395.929 m) above mean sea level. Measuring point: Top of casing 1.80 ft (0.549 m) above land-surface datum.
PERIOD OF RECORD.--August 1967 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.22 ft (0.677 m) below land-surface datum, Apr. 3, 1973; lowest measured, 8.9 ft (2.71 m) below land-surface datum, Sept. 13, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 25	8.7	FEB 22	8.66	JUN 13	6.8	AUG 2	7.6	AUG 21	7.8	SEP 13	8.0
DEC 12	8.59	MAR 16	8.8	JUL 10	7.3						

SPINK COUNTY

444219098300801. Local number, 114N64W11BBBB.
LOCATION.--Lat 44°42'19", long 98°30'08", Hydrologic Unit 10160006, 2 mi (3 km) south of Tulare.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled observation artesian well, diameter 4 in (0.101 m), depth 60 ft (18.3 m), perforated 20 to 60 ft (6.1 to 18.3 m).
DATUM.--Land-surface datum is 1,310.8 ft (399.5 m) above mean sea level. Measuring point: Top of casing 3.22 ft (0.98 m) above land-surface datum.
PERIOD OF RECORD.--February 1953 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 3.19 ft (0.972 m) below land-surface datum, Aug. 20, 1959; lowest, 27.89 ft (8.502 m) below land-surface datum, Aug. 31, 1977.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	20.17	16.78	15.50	14.54		---	12.52	11.51	10.59	10.84	26.33	26.08
10	19.28	16.52	15.42	---		---	12.35	11.33	10.26	11.92	26.56	21.78
15	18.79	16.00	14.92	---		13.45	12.38	11.21	10.36	21.09	22.55	20.16
20	17.90	15.76	15.09	---		13.21	12.14	11.21	10.95	23.81	25.09	19.02
25	17.49	15.87	14.91	---		13.21	12.05	10.91	10.55	21.80	25.19	18.20
EOM	16.96	15.46	14.76	---		12.56	11.73	10.76	10.83	23.26	25.90	17.36

WTR YR 1978 HIGH 10.26 JUN 10 LOW 27.13 AUG 29

444458098385501. Local number, 115N65W28AAAA (PT 9).
LOCATION.--Lat 44°44'58", long 98°38'55", Hydrologic Unit 10160009, 7 mi (11 km) west of Tulare.
Owner: U.S. Bureau of Reclamation.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Drilled unused irrigation water-table well, diameter 8 in (0.203 m), depth 105 ft (32.0 m), perforated 58 to 105 ft (17.7 to 32.0 m).
DATUM.--Land-surface datum is 1,340.43 ft (408.563 m) above mean sea level. Measuring point: Top of recorder platform 3.20 ft (0.975 m) above land-surface datum.
PERIOD OF RECORD.--July 1952 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level, 22.06 ft (6.724 m) below land-surface datum, June 20, 1953; lowest, 36.46 ft (11.113 m) below land-surface datum, Aug. 20, 1964.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978
INSTANTANEOUS OBSERVATIONS AT 1200

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
5	31.66	30.33	29.60	29.22		---	28.33	27.49	26.89	27.42	28.42	29.51
10	31.35	30.17	29.54	---		---	28.13	27.37	26.80	27.71	28.92	29.51
15	31.09	30.02	29.46	---		---	27.97	27.28	26.90	27.74	29.23	29.41
20	30.86	29.90	29.38	---		28.78	27.82	27.20	27.08	27.99	29.34	29.21
25	30.69	29.79	29.32	---		28.73	27.68	27.13	27.19	28.05	29.45	28.98
EOM	30.48	29.69	29.27	---		28.54	27.56	27.00	27.29	28.31	29.51	28.79

WTR YR 1978 HIGH 26.79 JUN 11 LOW 31.91 OCT 1

UNION COUNTY

430405096463201. Local number, 95N50W 8ABBD.
LOCATION.--Lat 43°04'05", long 96°46'32", Hydrologic Unit 10170102, at Beresford.
Owner: J. J. Dolan.
AQUIFER.--Glacial Outwash.
WELL CHARACTERISTICS.--Dug unused water-table well, diameter 24 in (0.610 m), depth 42 ft (12.8 m).
DATUM.--Altitude of land-surface datum is 1,515 ft (462 m). Measuring point: Top of casing 2.50 ft (0.762 m) above land-surface datum.
PERIOD OF RECORD.--August 1936 to 1944, 1946 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 0.51 ft (0.155 m) below land-surface datum, Apr. 11, 1947; lowest measured, 14.77 ft (4.502 m) below land-surface datum, May 2, 1957.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 27	3.67	DEC 20	3.97	FEB 15	6.02	APR 25	1.26	MAY 25	2.75	JUL 7	.68
NOV 23	3.00	JAN 24	5.37	APR 3	4.26						

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YANKTON COUNTY

425240097252001. Local number, 93N56W14AA.
LOCATION.--Lat 42°52'40", long 97°25'20", Hydrologic Unit 10170101, at Yankton.
Owner: John Kayser.
AQUIFER.--Niobrara Formation.
WELL CHARACTERISTICS.--Bored stock artesian well, diameter 18 in (0.457 m), depth 80 ft (24.4 m).
DATUM.--Altitude of land-surface datum is 1,200 ft (366 m). Measuring point: Base of pump 4.50 ft (1.372 m) above land-surface datum.
PERIOD OF RECORD.--March 1947 to current year.
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 36.40 ft (11.095 m) below land-surface datum, June 16, June 16, 1961; lowest measured, 51.16 ft (15.594 m) below land-surface datum, Nov. 17, 1960.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
NOV 28	41.99	JAN 31	44.00	MAR 31	38.25	MAY 24	42.64	JUL 12	38.85	SEP 26	46.39
DEC 16	43.61	FEB 17	44.02	APR 28	41.30	JUN 21	42.94	AUG 23	40.81		

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	LOCAL IDENT-I-FIER	DATE OF SAMPLE	TIME	GEO-LOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS) (00095)	PH (UNITS) (00400)	TEMPER-ATURE (DEG C) (00010)	HARD-NESS (MG/L AS CACO3) (00900)
				AURORA COUNTY					
435051098204501	104N63W 2AADD	78-07-26	1100	211NBRR	150	2450	7.8	10.5	160
435038098275201	104N64W 2ADAA	78-07-26	0900	211NBRR	175	2500	7.9	13.5	120
435057098290502	104N64W 3AAAA2	78-07-26	1000	211CDLL	300	3150	8.3	18.0	44
				BROWN COUNTY					
451431098061001	121N61W36DDDD	78-04-24	1545	112PLSC	20	8400	7.3	--	1700
451759098333501	121N63W15AAAB	78-04-21	1230	112PLSC	36	2380	7.4	10.0	260
451436098233201	121N63W34DDDD	78-04-24	1450	112PLSC	100	1700	7.8	--	440
451947098355504	121N65W 1AAAA4	78-04-24	1315	112PLSC	40	1650	7.6	--	1100
451436098393501	121N65W34CCCC	78-04-24	1240	112JMESD	344	1540	7.4	--	540
452312098283002	122N64W13AAAA2	78-04-21	1030	112PLSC	64	3900	7.7	--	330
452915098271501	123N63W 8BBBB	78-04-20	1715	112PLSC	30	5050	7.2	10.5	2000
452456098233101	123N63W34DDD	78-04-21	1130	112PLSC	51	2100	7.2	10.5	720
453428098194202	124N62W 8BBBB2	78-04-21	0830	112PLSC	24	395	7.9	9.5	210
454431098271301	124N63W 5CCCC	78-04-20	1800	112PLSC	34	640	7.5	9.5	310
453800098222002	125N63W13CCCC2	78-04-21	0735	112PLSC	34	7000	7.3	9.5	2100
				BUTTE COUNTY					
444314103465501	9N 3E20CDDD	78-08-23	--	331MDSN	3511	1080	7.1	41.5	610
445842103454301	12N 3E28ACBB	78-08-11	--	331MDSN	4850	2700	7.5	22.8	1700
445739103465301	12N 3E32ACBC	78-07-21	1400	337PHSP	5453	2780	6.7	55.6	1800
				CUSTER COUNTY					
434502103165801	3S 7E33AACB	78-07-19	1600	310MNLS	1070	350	7.6	14.5	160
433114103281601	6S 5E24BAAA	78-07-19	1300	337PHSP	780	410	7.4	15.1	190
433150103230501	6S 6E15ABDD	77-11-01	--	331MDSN	939	--	--	--	160
				FALL RIVER COUNTY					
432511103304801	7S 5E22CDCB	78-07-19	0900	310MNLS	501	1080	7.1	38.0	340
				FAULK COUNTY					
450121099001502	118N68W23BCBB2	78-08-01	--	310MNLS	1524	2250	7.3	22.5	1200
				HAAKON COUNTY					
443735101180501	8N23E26ACDA	78-08-09	--	331MDSN	3760	1800	6.9	58.2	1400
				HUGHES COUNTY					
441058099493501	108N75W 2CCBB	78-08-03	--	217INKR	1700	2350	7.0	27.3	1400
442703099521501	111N75W 5ACD	78-08-02	--	310MNLS	2065	2350	6.9	22.6	1500
				JERAULD COUNTY					
440359098532501	107N67W17DDBD	78-08-08	1330	112CRCK	82	1120	7.7	10.0	520
440135098520801	107N67W33DADB	78-08-08	1130	112CRCK	61	1000	7.3	9.5	470
440729098220701	108N63W35BBAC	78-08-08	0945	112WRRN	47	880	8.0	11.5	390
				LAWRENCE COUNTY					
442504103415301	5N 3E12	78-07-21	0900	337PHSP	550	828	7.2	10.7	480
442749103381401	6N 4E21DBC	78-08-10	--	310MNLS	630	540	7.3	12.0	280
443150104020001	7N 1E32BBB	78-08-10	--	310MNLS	985	600	7.5	13.8	330
				LYMAN COUNTY					
435813099315501	106N73W24ACDD	78-08-03	--	211DKOT	1270	2450	7.1	23.6	1400
				MEADE COUNTY					
442217103272201	5N 5E25ABD	78-08-10	--	331MDSN	1465	440	7.2	12.4	230
				MINNEHAHA COUNTY					
434508096372701	103N48W 5CACA	77-10-19	1000	400SOUX	300	920	7.3	10.0	530

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD-NESS, NONCAR-BONATE (MG/L CACO3) (00902)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)	SODIUM, DIS-SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD-SORP-TION RATIO (00931)	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	BICAR-BONATE (MG/L AS HCO3) (00440)	CAR-BONATE (MG/L AS CO3) (00445)	ALKA-LINITY (MG/L AS CACO3) (00410)
AURORA COUNTY											
435051098204501	78-07-26	0	41	14	460	85	16	15	560	0	460
435038098275201	78-07-26	0	29	11	530	90	21	13	520	0	430
435057098290502	78-07-26	0	11	4.0	700	96	46	9.7	670	0	550
BROWN COUNTY											
451431098061001	78-04-24	780	250	260	1700	68	18	19	1110	0	910
451759098333501	78-04-21	0	70	21	450	78	12	12	590	0	480
451436098233201	78-04-24	140	120	35	190	47	3.9	18	370	0	300
451947098355504	78-04-24	880	280	89	7.8	2	.1	10	230	0	190
451436098393501	78-04-24	230	160	33	120	32	2.3	13	370	0	300
452312098283002	78-04-21	0	86	27	660	81	16	16	630	0	520
452915098271501	78-04-20	1600	450	220	600	39	5.8	18	490	0	400
452456098233101	78-04-21	350	200	54	220	39	3.6	14	450	0	370
453428098194202	78-04-21	0	53	19	3.5	3	.1	6.4	270	0	220
454431098271301	78-04-20	35	81	27	23	14	.6	4.1	340	0	280
453800098222002	78-04-21	1700	270	340	1100	53	11	25	460	0	380
BUTTE COUNTY											
444314103465501	78-08-23	460	160	51	14	5	.2	5.0	186	0	150
445842103454301	78-08-11	1700	510	110	36	4	.4	35	110	0	90
445739103465301	78-07-21	1700	550	110	45	5	.5	12	190	0	160
CUSTER COUNTY											
434502103165801	78-07-19	29	45	12	7.3	9	.3	2.6	162	0	130
433114103281601	78-07-19	5	47	18	9.7	10	.3	2.9	228	0	190
433150103230501	77-11-01	0	40	15	9.2	11	.3	2.3	200	--	160
FALL RIVER COUNTY											
432511103304801	78-07-19	140	89	28	94	37	2.2	11	240	0	200
FAULK COUNTY											
450121099001502	78-08-01	1100	340	80	140	20	1.8	28	160	0	130
HAAKON COUNTY											
443735101180501	78-08-09	1300	420	90	34	5	.4	15	160	0	131
HUGHES COUNTY											
441058099493501	78-08-03	1300	410	90	83	11	1.0	20	170	0	139
442703099521501	78-08-02	1300	380	120	66	9	.8	19	170	0	139
JERAULD COUNTY											
440359098532501	78-08-08	180	140	42	47	16	.9	9.4	420	0	340
440135098520801	78-08-08	130	130	36	50	18	1.0	10	420	0	340
440729098220701	78-08-08	41	100	33	70	28	1.6	9.4	420	0	340
LAWRENCE COUNTY											
442504103415301	78-07-21	200	88	63	5.8	3	.1	3.6	338	0	280
442749103381401	78-08-10	74	75	22	2.4	2	.1	2.0	250	0	205
443150104020001	78-08-10	120	80	31	2.7	2	.1	2.2	250	0	205
LYMAN COUNTY											
435813099315501	78-08-03	1200	400	88	98	13	1.2	19	170	0	139
MEADE COUNTY											
442217103272201	78-08-10	11	55	23	2.3	2	.1	1.3	270	0	221
MINNEHAHA COUNTY											
434508096372701	77-10-19	230	150	38	16	6	.3	3.8	370	0	300

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	SULFATE DIS- SOLVED (MG/L AS SO4) (00945)	CHLO- RIDE, DIS- SOLVED (MG/L AS CL) (00940)	FLUO- RIDE, DIS- SOLVED (MG/L AS F) (00950)	BROMIDE DIS- SOLVED (MG/L AS BR) (71870)	IODIDE, DIS- SOLVED (MG/L AS I) (71865)	SILICA, DIS- SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) (70300)	SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) (70301)	SOLIDS, DIS- SOLVED (TONS PER AC-FT) (70303)	NITRO- GEN, NITRATE TOTAL (MG/L AS N) (00620)
AURORA COUNTY											
435051098204501	78-07-26	630	80	.8	--	--	20	--	1540	2.09	--
435038098275201	78-07-26	650	120	.8	--	--	15	--	1630	2.22	--
435057098290502	78-07-26	480	360	1.3	--	--	7.6	--	1910	2.60	--
BROWN COUNTY											
451431098061001	78-04-24	4000	130	.4	--	--	26	--	6950	9.45	--
451759098333501	78-04-21	390	250	.3	--	--	28	--	1510	2.05	--
451436098233201	78-04-24	290	210	.3	--	--	31	--	1080	1.47	--
451947098355504	78-04-24	810	24	.2	--	--	19	--	1350	1.84	--
451436098393501	78-04-24	250	190	.2	--	--	32	--	982	1.34	--
452312098283002	78-04-21	20	920	.3	--	--	28	--	2070	2.82	--
452915098271501	78-04-20	2200	390	.3	--	--	30	--	4160	5.66	--
452456098233101	78-04-21	710	94	.2	--	--	28	--	1550	2.11	--
453428098194202	78-04-21	8.4	2.2	.3	--	--	27	--	254	.35	--
454431098271301	78-04-20	63	19	.2	--	--	28	--	415	.56	--
453800098222002	78-04-21	3300	390	.4	--	--	25	--	5680	7.72	--
BUTTE COUNTY											
444314103465501	78-08-23	450	17	1.7	.4	.04	20	869	814	1.18	--
445842103454301	78-08-11	1600	25	3.1	.1	.01	17	2750	2410	3.74	--
445739103465301	78-07-21	1700	67	3.6	.2	.00	29	2680	2630	3.64	--
CUSTER COUNTY											
434502103165801	78-07-19	38	2.2	.4	.1	.00	13	203	201	.28	--
433114103281601	78-07-19	14	3.7	.5	.1	.00	15	211	224	.29	--
433150103230501	77-11-01	9.4	2.5	.4	.0	.01	17	183	195	.25	--
FALL RIVER COUNTY											
432511103304801	78-07-19	140	140	.8	.8	.01	28	702	652	.95	--
FAULK COUNTY											
450121099001502	78-08-01	1200	48	2.4	.2	.01	10	2080	1940	2.83	--
HAAKON COUNTY											
443735101180501	78-08-09	1300	48	3.4	.2	.00	31	2170	2030	2.95	--
HUGHES COUNTY											
441058099493501	78-08-03	1200	110	3.2	.4	.01	13	2230	2030	3.03	--
442703099521501	78-08-02	1300	80	3.2	.3	.01	13	2220	2080	3.02	--
JERAULD COUNTY											
440359098532501	78-08-08	260	15	.3	--	--	23	--	745	1.01	--
440135098520801	78-08-08	220	15	.2	--	--	26	--	696	.95	--
440729098220701	78-08-08	160	23	.2	--	--	27	--	631	.86	--
LAWRENCE COUNTY											
442504103415301	78-07-21	200	3.9	.2	.0	.00	12	571	544	.78	--
442749103381401	78-08-10	80	.8	.3	.0	.00	11	311	318	.42	--
443150104020001	78-08-10	120	.9	.3	.0	.00	11	380	372	.52	--
LYMAN COUNTY											
435813099315501	78-08-03	1200	120	2.8	.6	.02	11	2210	2040	3.01	--
MEADE COUNTY											
442217103272201	78-08-10	11	1.8	.3	.0	.00	10	226	239	.31	--
MINNEHAHA COUNTY											
434508096372701	77-10-19	260	1.5	.8	.0	.00	26	--	679	.92	.10

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	NITROGEN, NITRITE TOTAL (MG/L AS N) (00615)	NITROGEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N) (00631)	NITROGEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITROGEN, AMMONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOSPHORUS, TOTAL (MG/L AS P) (00665)	PHOSPHORUS, DISSOLVED (MG/L AS P) (00666)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P) (00671)	ALUMINUM, DISSOLVED (UG/L AS AL) (01106)	ARSENIC DISSOLVED (UG/L AS AS) (01000)
AURORA COUNTY											
435051098204501	78-07-26	--	--	.00	--	--	--	.00	.00	--	--
435038098275201	78-07-26	--	--	.02	--	--	--	.00	.00	--	--
435057098290502	78-07-26	--	--	.00	--	--	--	.00	.00	--	--
BROWN COUNTY											
451431098061001	78-04-24	--	--	3.4	--	--	--	.02	.02	--	--
451759098333501	78-04-21	--	--	.01	--	--	--	.03	.01	--	--
451436098233201	78-04-24	--	--	.04	--	--	--	.01	.00	--	--
451947098355504	78-04-24	--	--	.01	--	--	--	.00	.00	--	--
451436098393501	78-04-24	--	--	.03	--	--	--	.00	.00	--	--
452312098283002	78-04-21	--	--	.14	--	--	--	.03	.02	--	--
452915098271501	78-04-20	--	--	.02	--	--	--	.02	.00	--	--
452456098233101	78-04-21	--	--	.01	--	--	--	.00	.00	--	--
453428098194202	78-04-21	--	--	.01	--	--	--	.14	.12	--	--
454431098271301	78-04-20	--	--	.03	--	--	--	.01	.00	--	--
453800098222002	78-04-21	--	--	.84	--	--	--	.00	.00	--	--
BUTTE COUNTY											
444314103465501	78-08-23	--	--	--	--	.05	--	.01	--	0	3
445842103454301	78-08-11	--	--	--	--	.11	--	.00	--	0	2
445739103465301	78-07-21	--	--	--	--	.19	--	.00	--	10	1
CUSTER COUNTY											
434502103165801	78-07-19	--	--	--	--	.19	--	.00	--	30	11
433114103281601	78-07-19	--	--	--	--	.09	--	.00	--	20	1
433150103230501	77-11-01	--	--	--	--	.00	--	.00	--	10	11
FALL RIVER COUNTY											
432511103304801	78-07-19	--	--	--	--	.14	--	.00	--	20	4
FAULK COUNTY											
450121099001502	78-08-01	--	--	--	--	2.5	--	.00	--	0	0
HAAKON COUNTY											
443735101180501	78-08-09	--	--	--	--	.26	--	.01	--	0	0
HUGHES COUNTY											
441058099493501	78-08-03	--	--	--	--	.46	--	.00	--	0	2
442703099521501	78-08-02	--	--	--	--	.35	--	.00	--	0	1
JERAULD COUNTY											
440359098532501	78-08-08	--	--	.06	--	--	--	.00	--	--	--
440135098520801	78-08-08	--	--	.02	--	--	--	.00	--	--	--
440729098220701	78-08-08	--	--	.09	--	--	--	.00	--	--	--
LAWRENCE COUNTY											
442504103415301	78-07-21	--	--	--	--	.17	--	.00	--	20	1
442749103381401	78-08-10	--	--	--	--	.22	--	.00	--	0	5
443150104020001	78-08-10	--	--	--	--	.18	--	.01	--	0	2
LYMAN COUNTY											
435813099315501	78-08-03	--	--	--	--	.51	--	.00	--	0	1
MEADE COUNTY											
442217103272201	78-08-10	--	--	--	--	.08	--	.01	--	0	2
MINNEHAHA COUNTY											
434508096372701	77-10-19	.00	.10	.13	.00	--	.02	--	--	10	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	BARIUM, DIS- SOLVED (UG/L AS BA) (01005)	BORON, DIS- SOLVED (UG/L AS B) (01020)	CADMIUM DIS- SOLVED (UG/L AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L AS CR) (01030)	COPPER, DIS- SOLVED (UG/L AS CU) (01040)
AURORA COUNTY						
435051098204501	78-07-26	--	3500	--	--	--
435038098275201	78-07-26	--	3500	--	--	--
435057098290502	78-07-26	--	4900	--	--	--
BROWN COUNTY						
451431098061001	78-04-24	--	1200	--	--	--
451759098333501	78-04-21	--	1000	--	--	--
451436098233201	78-04-24	--	1000	--	--	--
451947098355504	78-04-24	--	90	--	--	--
451436098393501	78-04-24	--	810	--	--	--
452312098283002	78-04-21	--	1900	--	--	--
452915098271501	78-04-20	--	330	--	--	--
452456098233101	78-04-21	--	840	--	--	--
453428098194202	78-04-21	--	30	--	--	--
454431098271301	78-04-20	--	70	--	--	--
453800098222002	78-04-21	--	780	--	--	--
BUTTE COUNTY						
444314103465501	78-08-23	0	50	0	0	2
445842103454301	78-08-11	100	140	0	10	0
445739103465301	78-07-21	100	170	1	10	0
CUSTER COUNTY						
434502103165801	78-07-19	100	30	<1	0	3
433114103281601	78-07-19	100	30	<1	10	0
433150103230501	77-11-01	0	30	0	0	0
FALL RIVER COUNTY						
432511103304801	78-07-19	50	240	<1	0	6
FAULK COUNTY						
450121099001502	78-08-01	200	470	0	10	0
HAAKON COUNTY						
443735101180501	78-08-09	0	130	0	10	0
HUGHES COUNTY						
441058099493501	78-08-03	200	220	0	10	0
442703099521501	78-08-02	100	190	0	10	0
JERAULD COUNTY						
440359098532501	78-08-08	--	180	--	--	--
440135098520801	78-08-08	--	200	--	--	--
440729098220701	78-08-08	--	200	--	--	--
LAWRENCE COUNTY						
442504103415301	78-07-21	50	20	3	0	1
442749103381401	78-08-10	30	20	<1	0	0
443150104020001	78-08-10	30	20	<1	10	0
LYMAN COUNTY						
435813099315501	78-08-03	100	250	0	10	0
MEADE COUNTY						
442217103272201	78-08-10	300	10	<1	0	2
MINNEHAHA COUNTY						
434508096372701	77-10-19	--	200	--	0	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	IRON, DIS- SOLVED (UG/L AS FE) (01046)	LEAD, DIS- SOLVED (UG/L AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) (71900)	MERCURY DIS- SOLVED (UG/L AS HG) (71890)	MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) (01060)	SELE- NIUM, DIS- SOLVED (UG/L AS SE) (01145)	SILVER, DIS- SOLVED (UG/L AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L AS SR) (01080)
AURORA COUNTY											
435051098204501	78-07-26	190	--	--	20	--	--	--	--	--	--
435038098275201	78-07-26	190	--	--	20	--	--	--	--	--	--
435057098290502	78-07-26	80	--	--	20	--	--	--	--	--	--
BROWN COUNTY											
451431098061001	78-04-24	630	--	--	1700	--	--	--	--	--	--
451759098333501	78-04-21	720	--	--	230	--	--	--	--	--	--
451436098233201	78-04-24	20	--	--	580	--	--	--	--	--	--
451947098355504	78-04-24	30	--	--	1200	--	--	--	--	--	--
451436098393501	78-04-24	230	--	--	520	--	--	--	--	--	--
452312098283002	78-04-21	130	--	--	300	--	--	--	--	--	--
452915098271501	78-04-20	3900	--	--	1500	--	--	--	--	--	--
452456098233101	78-04-21	2200	--	--	880	--	--	--	--	--	--
453428098194202	78-04-21	60	--	--	250	--	--	--	--	--	--
454431098271301	78-04-20	1000	--	--	1100	--	--	--	--	--	--
453800098222002	78-04-21	1100	--	--	1300	--	--	--	--	--	--
BUTTE COUNTY											
444314103465501	78-08-23	40	4	20	0	--	.1	17	8	--	3300
445842103454301	78-08-11	7900	0	90	150	--	.1	34	0	--	12000
445739103465301	78-07-21	5700	4	60	60	--	.0	19	0	--	11000
CUSTER COUNTY											
434502103165801	78-07-19	30	0	10	<1	--	.0	0	2	--	300
433114103281601	78-07-19	80	0	10	30	--	.0	2	1	--	240
433150103230501	77-11-01	20	2	10	4	--	.0	1	2	--	280
FALL RIVER COUNTY											
432511103304801	78-07-19	40	1	160	3	--	.0	5	2	--	1900
FAULK COUNTY											
450121099001502	78-08-01	2000	0	110	100	--	1.1	0	0	--	9100
HAAKON COUNTY											
443735101180501	78-08-09	3000	0	70	50	--	.0	0	0	--	9200
HUGHES COUNTY											
441058099493501	78-08-03	2600	0	100	70	--	.9	0	0	--	9300
442703099521501	78-08-02	1300	0	110	100	--	1.1	0	0	--	9400
JERAULD COUNTY											
440359098532501	78-08-08	80	--	--	650	--	--	--	--	--	--
440135098520801	78-08-08	70	--	--	1400	--	--	--	--	--	--
440729098220701	78-08-08	30	--	--	410	--	--	--	--	--	--
LAWRENCE COUNTY											
442504103415301	78-07-21	10	29	7	3	--	.0	1	1	--	500
442749103381401	78-08-10	<10	0	8	<1	--	.2	0	1	--	850
443150104020001	78-08-10	<10	0	8	<1	--	.0	6	2	--	560
LYMAN COUNTY											
435813099315501	78-08-03	4100	0	110	140	--	.3	3	0	--	9000
MEADE COUNTY											
442217103272201	78-08-10	20	3	<4	5	--	.3	7	3	--	330
MINNEHAHA COUNTY											
434508096372701	77-10-19	50	--	--	--	.0	--	--	--	0	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
AURORA COUNTY									
435051098204501	78-07-26	--	--	--	--	--	--	--	--
435038098275201	78-07-26	--	--	--	--	--	--	--	--
435057098290502	78-07-26	--	--	--	--	--	--	--	--
BROWN COUNTY									
451431098061001	78-04-24	--	--	--	--	--	--	--	--
451759098333501	78-04-21	--	--	--	--	--	--	--	--
451436098233201	78-04-24	--	--	--	--	--	--	--	--
451947098355504	78-04-24	--	--	--	--	--	--	--	--
451436098393501	78-04-24	--	--	--	--	--	--	--	--
452312098283002	78-04-21	--	--	--	--	--	--	--	--
452915098271501	78-04-20	--	--	--	--	--	--	--	--
452456098233101	78-04-21	--	--	--	--	--	--	--	--
453428098194202	78-04-21	--	--	--	--	--	--	--	--
454431098271301	78-04-20	--	--	--	--	--	--	--	--
453800098222002	78-04-21	--	--	--	--	--	--	--	--
BUTTE COUNTY									
444314103465501	78-08-23	5.0	180	18	<.4	8.7	.5	7.9	.6
445842103454301	78-08-11	.0	840	81	2.4	38	.8	34	.8
445739103465301	78-07-21	.0	190	200	6.4	39	1.3	32	1.3
CUSTER COUNTY									
434502103165801	78-07-19	2.3	20	5.6	<.4	4.6	<.4	4.3	<.4
433114103281601	78-07-19	.0	7	4.0	<.4	3.6	<.4	3.4	<.4
433150103230501	77-11-01	3.9	2	14	<.4	4.6	<.4	4.2	<.4
FALL RIVER COUNTY									
432511103304801	78-07-19	3.0	30	20	<.4	13	<.4	11	<.4
FAULK COUNTY									
450121099001502	78-08-01	.3	10	29	.5	31	.4	28	.4
HAAKON COUNTY									
443735101180501	78-08-09	.0	20	150	1.3	27	<.4	24	<.4
HUGHES COUNTY									
441058099493501	78-08-03	.0	20	87	2.3	43	.7	39	.8
442703099521501	78-08-02	.0	10	<23	.5	33	<.4	29	<.4
JERAULD COUNTY									
440359098532501	78-08-08	--	--	--	--	--	--	--	--
440135098520801	78-08-08	--	--	--	--	--	--	--	--
440729098220701	78-08-08	--	--	--	--	--	--	--	--
LAWRENCE COUNTY									
442504103415301	78-07-21	.0	590	<4.4	<.4	3.6	<.4	3.3	<.4
442749103381401	78-08-10	.7	100	5.8	<.4	3.8	<.4	3.6	<.4
443150104020001	78-08-10	2.3	5	8.2	.6	4.3	.8	4.0	.8
LYMAN COUNTY									
435813099315501	78-08-03	.0	10	<18	<.4	24	<.4	22	<.4
MEADE COUNTY									
442217103272201	78-08-10	.7	20	18	<.4	3.2	.5	3.0	.6
MINNEHAHA COUNTY									
434508096372701	77-10-19	--	90	--	--	--	--	--	--

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WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	CYANIDE TOTAL (MG/L AS CN) (00720)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
AURORA COUNTY			
435051098204501	78-07-26	--	41
435038098275201	78-07-26	--	29
435057098290502	78-07-26	--	11
BROWN COUNTY			
451431098061001	78-04-24	--	250
451759098333501	78-04-21	--	70
451436098233201	78-04-24	--	120
451947098355504	78-04-24	--	280
451436098393501	78-04-24	--	160
452312098283002	78-04-21	--	86
452915098271501	78-04-20	--	450
452456098233101	78-04-21	--	200
453428098194202	78-04-21	--	53
454431098271301	78-04-20	--	81
453800098222002	78-04-21	--	270
BUTTE COUNTY			
444314103465501	78-08-23	--	160
445842103454301	78-08-11	--	510
445739103465301	78-07-21	--	550
CUSTER COUNTY			
434502103165801	78-07-19	--	45
433114103281601	78-07-19	--	47
433150103230501	77-11-01	--	40
FALL RIVER COUNTY			
432511103304801	78-07-19	--	89
FAULK COUNTY			
450121099001502	78-08-01	--	340
HAAKON COUNTY			
443735101180501	78-08-09	--	420
HUGHES COUNTY			
441058099493501	78-08-03	--	410
442703099521501	78-08-02	--	380
JERAULD COUNTY			
440359098532501	78-08-08	--	140
440135098520801	78-08-08	--	130
440729098220701	78-08-08	--	100
LAWRENCE COUNTY			
442504103415301	78-07-21	--	88
442749103381401	78-08-10	--	75
443150104020001	78-08-10	--	80
LYMAN COUNTY			
435813099315501	78-08-03	--	400
MEADE COUNTY			
442217103272201	78-08-10	--	55
MINNEHAHA COUNTY			
434508096372701	77-10-19	.00	150

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	LOCAL IDENTIFIER	DATE OF SAMPLE	TIME	GEOLOGIC UNIT	DEPTH OF WELL, TOTAL (FEET) (72008)	SPECIFIC CONDUCTANCE (MICROMHOS) (00095)	PH (UNITS) (00400)	TEMPERATURE (DEG C) (00010)	HARDNESS (MG/L AS CACO3) (00900)
MINNEHAHA COUNTY									
434508096372701	103N48W 5CACA	78-04-26	1215	400SOUX	300	930	7.4	10.0	440
434414096380301	103N48W 7DAC	77-10-18	1300	112PLSC	40	840	7.0	13.5	580
		78-04-26	1045	112PLSC	40	1120	7.5	6.0	610
434432096364201	103N48W 8ADA	77-10-18	1500	112PLSC	39	1260	6.8	12.0	760
		78-04-26	1320	112PLSC	39	1360	7.0	6.0	760
434435096374802	103N48W 8BCCB2	77-10-19	0900	400SOUX	465	1260	7.2	--	780
		78-04-27	1315	400SOUX	465	1500	7.3	10.0	900
434357096364201	103N48W 8DDDD	77-10-19	1300	400SOUX	165	765	7.3	10.0	410
		78-04-27	1000	400SOUX	165	775	7.3	10.0	430
434429096361801	103N48W 9BDCB	77-10-18	1600	400SOUX	150	710	7.5	--	370
		78-04-27	1410	400SOUX	150	740	7.4	10.0	390
434400096362201	103N48W 9CCDA	77-10-19	1130	400SOUX	80	1440	7.1	10.0	1300
		78-04-27	1100	400SOUX	80	2510	7.1	10.0	1300
434332096371501	103N48W17ACCC	77-10-19	1415	400SOUX	280	780	7.3	10.0	450
		78-04-27	1500	400SOUX	280	910	7.3	10.0	410
434339096381101	103N48W18ACA	77-10-19	1500	400SOUX	150	1430	7.7	9.5	1100
		78-04-27	1610	400SOUX	150	1850	7.6	10.0	1100
PENNINGTON COUNTY									
440203103143601	1N 7E23BDAB	78-08-12	--	310MNLS	1870	1150	7.4	17.7	620
435835103175001	1S 7E 9CBBD	78-07-20	0800	360DDWD	1105	670	7.9	16.1	56
440808103193701	2N 7E18BCA	78-07-20	1300	337PHSP	570	390	7.4	11.9	220
SPINK COUNTY									
443731098203001	115N63W 1DDDD	78-04-19	1410	112PLSC	50	760	7.7	8.5	150
445000098225501	116N63W27AADA	78-04-24	0900	112PLSC	37	3700	7.1	10.0	2400
445535098304501	117N64W26BBBB	78-04-24	1030	112PLSC	30	10000	7.7	--	3000
445900098135001	118N61W31CCCC	78-04-25	1010	112PLSC	87	3300	7.2	10.0	1100
450315098194502	118N62W 8BBBB2	78-04-25	0855	112PLSC	70	4600	7.1	10.5	2500
450920098122501	119N61W 6AAAA	78-04-25	0800	112PLSC	50	240	7.7	10.0	84
451023098381001	120N65W35BBBB	78-04-24	1330	112PLSC	26	700	8.1	--	280
STANLEY COUNTY									
442235100505001	5N27E22CD	78-08-01	--	331MDSN	2640	2200	6.8	57.0	1400

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	HARD- NESS, NONCAR- BONATE (MG/L CACO3) (00902)	CALCIUM DIS- SOLVED (MG/L AS CA) (00915)	MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) (00925)	SODIUM, DIS- SOLVED (MG/L AS NA) (00930)	SODIUM PERCENT (00932)	SODIUM AD- SORP- TION RATIO (00931)	POTAS- SIUM, DIS- SOLVED (MG/L AS K) (00935)	BICAR- BONATE (MG/L AS HCO3) (00440)	CAR- BONATE (MG/L AS CO3) (00445)	ALKA- LINITY (MG/L AS CACO3) (00410)
MINNEHAHA COUNTY											
434508096372701	78-04-26	160	160	11	16	7	.3	4.2	350	0	290
434414096380301	77-10-18	170	110	73	20	7	.4	1.9	490	0	400
	78-04-26	84	130	69	27	9	.5	11	640	0	530
434432096364201	77-10-18	85	170	81	16	4	.3	6.7	820	0	670
	78-04-26	170	180	76	17	5	.3	10	720	0	590
434435096374802	77-10-19	480	200	67	21	6	.3	3.6	360	0	300
	78-04-27	600	240	73	22	5	.3	4.0	370	0	300
434357096364201	77-10-19	45	100	38	19	9	.4	4.3	440	0	360
	78-04-27	58	110	37	19	9	.4	4.1	450	0	370
434429096361801	77-10-18	38	89	37	19	10	.4	2.8	410	0	340
	78-04-27	55	99	35	20	10	.4	2.9	410	0	340
434400096362201	77-10-19	860	240	170	60	9	.7	6.9	540	0	440
	78-04-27	840	240	160	63	10	.8	6.7	510	0	420
434332096371501	77-10-19	130	130	30	16	7	.3	3.9	390	0	320
	78-04-27	79	120	26	16	8	.3	4.0	400	0	330
434339096381101	77-10-19	880	290	98	32	6	.4	5.6	300	0	250
	78-04-27	800	280	94	32	6	.4	5.7	350	0	290
PENNINGTON COUNTY											
440203103143601	78-08-12	480	160	53	11	4	.2	5.0	170	0	139
435835103175001	78-07-20	0	8.6	8.0	160	85	9.4	5.8	430	0	350
440808103193701	78-07-20	20	46	25	2.4	2	.1	1.8	242	0	200
SPINK COUNTY											
443731098203001	78-04-19	0	38	14	120	61	4.2	8.9	440	0	360
445000098225501	78-04-24	2100	560	250	160	12	1.4	17	380	0	310
445535098304501	78-04-24	2400	440	470	1800	56	14	40	750	0	620
445900098135001	78-04-25	650	300	95	370	41	4.8	19	600	0	490
450315098194502	78-04-25	2100	640	210	330	22	2.9	32	480	0	390
450920098122501	78-04-25	0	25	5.3	16	27	.8	8.7	130	0	110
451023098381001	78-04-24	0	70	25	54	29	1.4	7.9	360	0	300
STANLEY COUNTY											
442235100505001	78-08-01	1300	410	83	72	10	.8	20	140	0	115

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	BROMIDE DIS-SOLVED (MG/L AS BR) (71870)	IODIDE, DIS-SOLVED (MG/L AS I) (71865)	SILICA, DIS-SOLVED (MG/L AS SIO2) (00955)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)	SOLIUS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) (70301)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	NITRO-GEN, NITRATE TOTAL (MG/L AS N) (00620)
MINNEHAHA COUNTY											
434508096372701	78-04-26	210	3.0	.8	.1	.01	24	--	617	.84	4.7
434414096380301	77-10-18	77	16	.9	.1	.01	28	--	572	.78	.89
	78-04-26	100	31	.6	.2	.00	14	--	702	.95	.43
434432096364201	77-10-18	45	29	.6	.3	.01	29	--	818	1.11	6.6
	78-04-26	69	42	.4	.3	.02	22	--	865	1.18	20
434435096374802	77-10-19	510	3.2	.7	.1	.01	17	--	1000	1.36	.06
	78-04-27	620	3.4	.7	.1	.02	17	--	1160	1.58	.05
434357096364201	77-10-19	86	5.5	1.3	.1	.01	27	--	499	.68	.04
	78-04-27	77	5.9	1.3	.2	.02	25	--	505	.69	.30
434429096361801	77-10-18	66	3.6	.8	.1	.00	29	--	465	.63	3.7
	78-04-27	72	3.9	.8	.1	.00	28	--	480	.65	3.4
434400096362201	77-10-19	180	200	.5	1.9	.04	27	--	1820	2.48	140
	78-04-27	200	200	.5	.8	.02	23	--	1580	2.15	150
434332096371501	77-10-19	140	1.1	.4	.0	.01	24	--	539	.73	.01
	78-04-27	110	1.1	.4	.1	.00	22	--	499	.68	.31
434339096381101	77-10-19	890	7.7	.4	.1	.02	18	--	1500	2.04	6.8
	78-04-27	830	7.5	.3	.2	.02	16	--	1450	1.97	.75
PENNINGTON COUNTY											
440203103143601	78-08-12	480	2.7	.5	.0	.00	10	848	808	1.15	--
435835103175001	78-07-20	3.5	12	5.4	.3	.00	10	402	428	.55	--
440808103193701	78-07-20	14	1.5	.2	.1	.00	11	217	222	.30	--
SPINK COUNTY											
443731098203001	78-04-19	59	6.9	.5	--	--	27	--	493	.67	--
445000098225501	78-04-24	2200	60	.3	--	--	28	--	3470	4.72	--
445535098304501	78-04-24	5400	390	.3	--	--	25	--	8940	12.2	--
445900098135001	78-04-25	1300	110	.2	--	--	26	--	2520	3.43	--
450315098194502	78-04-25	2600	110	.2	--	--	27	--	4220	5.74	--
450920098122501	78-04-25	14	6.0	.1	--	--	9.0	--	151	.21	--
451023098381001	78-04-24	75	15	.4	--	--	29	--	457	.62	--
STANLEY COUNTY											
442235100505001	78-08-01	1200	110	3.4	.5	.01	29	2140	2010	2.91	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	NITRO-GEN, NITRITE TOTAL (MG/L AS N) (00615)	NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) (00630)	NITRO-GEN, NO2+NO3 DIS-SOLVED (MG/L AS N) (00631)	NITRO-GEN, AMMONIA TOTAL (MG/L AS N) (00610)	NITRO-GEN,AM-MONIA + ORGANIC TOTAL (MG/L AS N) (00625)	PHOS-PHORUS, TOTAL (MG/L AS P) (00665)	PHOS-PHORUS, DIS-SOLVED (MG/L AS P) (00666)	PHOS-PHORUS, ORTHO, DIS-SOLVED (MG/L AS P) (00671)	ALUM-INUM, DIS-SOLVED (UG/L AS AL) (01106)	ARSENIC DIS-SOLVED (UG/L AS AS) (01000)
MINNEHAHA COUNTY											
434508096372701	78-04-26	.01	4.7	3.5	.01	--	.07	--	--	0	--
434414096380301	77-10-18	.00	.89	.76	.00	--	.00	--	--	10	--
	78-04-26	.01	.44	.48	.11	--	.08	--	--	0	--
434432096364201	77-10-18	.01	6.6	--	.00	--	.01	--	--	20	--
	78-04-26	.01	20	21	.05	--	.03	--	--	0	--
434435096374802	77-10-19	.00	.06	.08	.00	--	.01	--	--	20	--
	78-04-27	.00	.05	.06	.03	--	.00	--	--	0	--
434357096364201	77-10-19	.00	.04	.06	.00	--	.00	--	--	20	--
	78-04-27	.00	.30	.43	.03	--	.02	--	--	0	--
434429096361801	77-10-18	.00	3.7	3.5	.00	--	.01	--	--	20	--
	78-04-27	.00	3.4	3.5	.00	--	.01	--	--	0	--
434400096362201	77-10-19	.01	140	150	.00	--	.02	--	--	10	--
	78-04-27	.02	150	98	.00	--	.03	--	--	0	--
434332096371501	77-10-19	.00	.01	--	.32	--	.00	--	--	10	--
	78-04-27	.01	.32	.22	.16	--	.01	--	--	0	--
434339096381101	77-10-19	.00	6.8	.02	.63	--	.06	--	--	0	--
	78-04-27	.01	.76	.00	.58	--	.05	--	--	0	--
PENNINGTON COUNTY											
440203103143601	78-08-12	--	--	--	--	.15	--	.00	--	0	1
435835103175001	78-07-20	--	--	--	--	.55	--	.00	--	20	1
440808103193701	78-07-20	--	--	--	--	.19	--	.00	--	20	3
SPINK COUNTY											
443731098203001	78-04-19	--	--	.03	--	--	--	.07	.06	--	--
445000098225501	78-04-24	--	--	.01	--	--	--	.00	.00	--	--
445535098304501	78-04-24	--	--	.67	--	--	--	.02	.00	--	--
445900098135001	78-04-25	--	--	.01	--	--	--	.00	.00	--	--
450315098194502	78-04-25	--	--	.03	--	--	--	.02	.04	--	--
450920098122501	78-04-25	--	--	.03	--	--	--	.21	.18	--	--
451023098381001	78-04-24	--	--	.70	--	--	--	.00	.00	--	--
STANLEY COUNTY											
442235100505001	78-08-01	--	--	--	--	.47	--	.00	--	0	0

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	BARIUM, DIS-SOLVED (UG/L AS BA) (01005)	BORON, DIS-SOLVED (UG/L AS B) (01020)	CADMIUM DIS-SOLVED (UG/L AS CD) (01025)	CHRO-MIUM, DIS-SOLVED (UG/L AS CR) (01030)	COPPER, DIS-SOLVED (UG/L AS CU) (01040)
MINNEHAHA COUNTY						
434508096372701	78-04-26	--	190	--	0	--
434414096380301	77-10-18	--	90	--	10	--
	78-04-26	--	70	--	0	--
434432096364201	77-10-18	--	90	--	0	--
	78-04-26	--	60	--	0	--
434435096374802	77-10-19	--	260	--	0	--
	78-04-27	--	320	--	0	--
434357096364201	77-10-19	--	190	--	10	--
	78-04-27	--	200	--	0	--
434429096361801	77-10-18	--	90	--	20	--
	78-04-27	--	100	--	0	--
434400096362201	77-10-19	--	70	--	10	--
	78-04-27	--	80	--	0	--
434332096371501	77-10-19	--	300	--	20	--
	78-04-27	--	330	--	0	--
434339096381101	77-10-19	--	460	--	10	--
	78-04-27	--	480	--	0	--
PENNINGTON COUNTY						
440203103143601	78-08-12	10	30	<1	0	0
435835103175001	78-07-20	1500	290	<1	0	0
440808103193701	78-07-20	100	20	<1	0	6
SPINK COUNTY						
443731098203001	78-04-19	--	600	--	--	--
445000098225501	78-04-24	--	200	--	--	--
445535098304501	78-04-24	--	790	--	--	--
445900098135001	78-04-25	--	520	--	--	--
450315098194502	78-04-25	--	1300	--	--	--
450920098122501	78-04-25	--	90	--	--	--
451023098381001	78-04-24	--	190	--	--	--
STANLEY COUNTY						
442235100505001	78-08-01	200	180	0	0	0

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	IRON, DIS-SOLVED (UG/L AS FE) (01046)	LEAD, DIS-SOLVED (UG/L AS PB) (01049)	LITHIUM DIS-SOLVED (UG/L AS LI) (01130)	MANGA-NESE, DIS-SOLVED (UG/L AS MN) (01056)	MERCURY TOTAL RECOV-ERABLE (UG/L AS HG) (71900)	MERCURY DIS-SOLVED (UG/L AS HG) (71890)	MOLYB-DENUM, DIS-SOLVED (UG/L AS MO) (01060)	SELE-NIUM, DIS-SOLVED (UG/L AS SE) (01145)	SILVER, DIS-SOLVED (UG/L AS AG) (01075)	STRON-TIUM, DIS-SOLVED (UG/L AS SR) (01080)
					MINNEHAHA COUNTY						
434508096372701	78-04-26	50	--	--	--	.0	--	--	--	0	--
434414096380301	77-10-18	210	--	--	--	.0	--	--	--	0	--
	78-04-26	170	--	--	--	.0	--	--	--	0	--
434432096364201	77-10-18	240	--	--	--	.0	--	--	--	0	--
	78-04-26	280	--	--	--	.0	--	--	--	0	--
434435096374802	77-10-19	30	--	--	--	.0	--	--	--	0	--
	78-04-27	410	--	--	--	.0	--	--	--	0	--
434357096364201	77-10-19	270	--	--	--	.0	--	--	--	0	--
	78-04-27	1400	--	--	--	.0	--	--	--	0	--
434429096361801	77-10-18	150	--	--	--	.0	--	--	--	0	--
	78-04-27	130	--	--	--	.0	--	--	--	0	--
434400096362201	77-10-19	50	--	--	--	.0	--	--	--	0	--
	78-04-27	30	--	--	--	.0	--	--	--	0	--
434332096371501	77-10-19	550	--	--	--	.0	--	--	--	0	--
	78-04-27	180	--	--	--	.0	--	--	--	0	--
434339096381101	77-10-19	9200	--	--	--	.0	--	--	--	0	--
	78-04-27	5800	--	--	--	.0	--	--	--	0	--
					PENNINGTON COUNTY						
440203103143601	78-08-12	320	0	30	40	--	.1	3	4	--	1600
435835103175001	78-07-20	80	2	140	<1	--	.0	0	0	--	650
440808103193701	78-07-20	<10	2	4	<1	--	.0	0	1	--	140
					SPINK COUNTY						
443731098203001	78-04-19	370	--	--	320	--	--	--	--	--	--
445000098225501	78-04-24	9200	--	--	2600	--	--	--	--	--	--
445535098304501	78-04-24	90	--	--	1200	--	--	--	--	--	--
445900098135001	78-04-25	3000	--	--	3300	--	--	--	--	--	--
450315098194502	78-04-25	29000	--	--	1300	--	--	--	--	--	--
450920098122501	78-04-25	1200	--	--	1300	--	--	--	--	--	--
451023098381001	78-04-24	200	--	--	0	--	--	--	--	--	--
					STANLEY COUNTY						
442235100505001	78-08-01	420	0	120	20	--	.0	0	0	--	9000

< Less than.

WATER QUALITY DATA, WATER YEAR OCTOBER 1977 TO SEPTEMBER 1978

STATION NUMBER	DATE OF SAMPLE	VANADIUM, DISSOLVED (UG/L AS V) (01085)	ZINC, DISSOLVED (UG/L AS ZN) (01090)	GROSS ALPHA, DISSOLVED (UG/L AS U-NAT) (80030)	GROSS ALPHA, SUSP. TOTAL (UG/L AS U-NAT) (80040)	GROSS BETA, DISSOLVED (PCI/L AS CS-137) (03515)	GROSS BETA, SUSP. TOTAL (PCI/L AS CS-137) (03516)	GROSS BETA, DISSOLVED (PCI/L AS SR/YT-90) (80050)	GROSS BETA, SUSP. TOTAL (PCI/L AS SR/YT-90) (80060)
MINNEHAHA COUNTY									
434508096372701	78-04-26	--	20	--	--	--	--	--	--
434414096380301	77-10-18	--	50	--	--	--	--	--	--
	78-04-26	--	1500	--	--	--	--	--	--
434432096364201	77-10-18	--	20	--	--	--	--	--	--
	78-04-26	--	20	--	--	--	--	--	--
434435096374802	77-10-19	--	30	--	--	--	--	--	--
	78-04-27	--	40	--	--	--	--	--	--
434357096364201	77-10-19	--	400	--	--	--	--	--	--
	78-04-27	--	250	--	--	--	--	--	--
434429096361801	77-10-18	--	70	--	--	--	--	--	--
	78-04-27	--	40	--	--	--	--	--	--
434400096362201	77-10-19	--	80	--	--	--	--	--	--
	78-04-27	--	120	--	--	--	--	--	--
434332096371501	77-10-19	--	530	--	--	--	--	--	--
	78-04-27	--	500	--	--	--	--	--	--
434339096381101	77-10-19	--	210	--	--	--	--	--	--
	78-04-27	--	900	--	--	--	--	--	--
PENNINGTON COUNTY									
440203103143601	78-08-12	.0	70	16	<.4	4.4	<.4	4.0	<.4
435835103175001	78-07-20	.0	8	140	<.4	34	<.4	33	<.4
440808103193701	78-07-20	.0	230	7.7	<.4	3.0	<.4	2.8	<.4
SPINK COUNTY									
443731098203001	78-04-19	--	--	--	--	--	--	--	--
445000098225501	78-04-24	--	--	--	--	--	--	--	--
445535098304501	78-04-24	--	--	--	--	--	--	--	--
445900098135001	78-04-25	--	--	--	--	--	--	--	--
450315098194502	78-04-25	--	--	--	--	--	--	--	--
450920098122501	78-04-25	--	--	--	--	--	--	--	--
451023098381001	78-04-24	--	--	--	--	--	--	--	--
STANLEY COUNTY									
442235100505001	78-08-01	.0	10	370	<.4	93	<.4	84	<.4

< Less than.

STATION NUMBER	DATE OF SAMPLE	CYANIDE TOTAL (MG/L AS CN) (00720)	CALCIUM DIS-SOLVED (MG/L AS CA) (00915)
	MINNEHAHA COUNTY		
434508096372701	78-04-26	.00	160
434414096380301	77-10-18	.00	110
	78-04-26	.00	130
434432096364201	77-10-18	.00	170
	78-04-26	.02	180
434435096374802	77-10-19	.00	200
	78-04-27	.00	240
434357096364201	77-10-19	.00	100
	78-04-27	.00	110
434429096361801	77-10-18	.00	89
	78-04-27	.00	99
434400096362201	77-10-19	.02	240
	78-04-27	.03	240
434332096371501	77-10-19	.00	130
	78-04-27	.00	120
434339096381101	77-10-19	.00	290
	78-04-27	.00	280
	PENNINGTON COUNTY		
440203103143601	78-08-12	--	160
435835103175001	78-07-20	--	8.6
440808103193701	78-07-20	--	46
	SPINK COUNTY		
443731098203001	78-04-19	--	38
445000098225501	78-04-24	--	560
445535098304501	78-04-24	--	440
445900098135001	78-04-25	--	300
450315098194502	78-04-25	--	640
450920098122501	78-04-25	--	25
451023098381001	78-04-24	--	70
	STANLEY COUNTY		
442235100505001	78-08-01	--	410

APPENDIX

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
00623	NITROGEN, AMMONIA PLUS ORGANIC, DISSOLVED (MG/L AS N)
00623	NITROGEN, KJELDAHL, DISSOLVED (MG/L AS N)
00624	NITROGEN, AMMONIA PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS N)
00624	NITROGEN, KJELDAHL, SUSPENDED (MG/L AS N)
00625	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL (MG/L AS N)
00625	NITROGEN, KJELDAHL, TOTAL (MG/L AS N)
00626	NITROGEN, AMMONIA PLUS ORGANIC, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00626	NITROGEN, KJELDAHL, TOTAL IN BOTTOM MATERIAL, DRY WT (MG/KG AS N)
00683	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00683	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED TOTAL (MG/L AS C)
00688	CARBON, INORGANIC, SUSPENDED (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00689	CARBON, ORGANIC, SUSPENDED (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED TOTAL (MG/L AS C)
00694	CARBON, INORGANIC PLUS ORGANIC, SUSPENDED (MG/L AS C)
00916	CALCIUM, TOTAL RECOVERABLE (MG/L AS CA)
00916	CALCIUM, TOTAL (MG/L AS CA)
00926	MAGNESIUM, SUSPENDED RECOVERABLE (MG/L AS MG)
00926	MAGNESIUM, SUSPENDED (MG/L AS MG)
00927	MAGNESIUM, TOTAL RECOVERABLE (MG/L AS MG)
00927	MAGNESIUM, TOTAL (MG/L AS MG)
01001	ARSENIC, SUSPENDED TOTAL (UG/L AS AS)
01001	ARSENIC, SUSPENDED (UG/L AS AS)
01006	BARIUM, SUSPENDED RECOVERABLE (UG/L AS BA)
01006	BARIUM, SUSPENDED (UG/L AS BA)
01007	BARIUM, TOTAL RECOVERABLE (UG/L AS BA)
01007	BARIUM, TOTAL (UG/L AS BA)
01008	BARIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BA)
01008	BARIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BA)
01011	BERYLLIUM, SUSPENDED RECOVERABLE (UG/L AS BE)
01011	BERYLLIUM, SUSPENDED (UG/L AS BE)
01012	BERYLLIUM, TOTAL RECOVERABLE (UG/L AS BE)
01012	BERYLLIUM, TOTAL (UG/L AS BE)
01013	BERYLLIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS BE)
01013	BERYLLIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS BE)
01016	BISMUTH, SUSPENDED TOTAL (UG/L AS BI)
01016	BISMUTH, SUSPENDED (UG/L AS BI)
01021	BORON, SUSPENDED RECOVERABLE (UG/L AS B)
01021	BORON, SUSPENDED (UG/L AS B)
01022	BORON, TOTAL RECOVERABLE (UG/L AS B)
01022	BORON, TOTAL (UG/L AS B)
01023	BORON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS B)
01023	BORON, TOTAL IN BOTTOM MATERIAL (UG/G AS B)
01026	CADMIUM, SUSPENDED RECOVERABLE (UG/L AS CD)
01026	CADMIUM, SUSPENDED (UG/L AS CD)
01027	CADMIUM, TOTAL RECOVERABLE (UG/L AS CD)
01027	CADMIUM, TOTAL (UG/L AS CD)
01028	CADMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CD)
01028	CADMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CD)
01029	CHROMIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CR)
01029	CHROMIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS CR)
01031	CHROMIUM, SUSPENDED RECOVERABLE (UG/L AS CR)
01031	CHROMIUM, SUSPENDED (UG/L AS CR)
01034	CHROMIUM, TOTAL RECOVERABLE (UG/L AS CR)
01034	CHROMIUM, TOTAL (UG/L AS CR)
01036	COBALT, SUSPENDED RECOVERABLE (UG/L AS CO)
01036	COBALT, SUSPENDED (UG/L AS CO)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01037	COBALT, TOTAL RECOVERABLE (UG/L AS CO)
01037	COBALT, TOTAL (UG/L AS CO)
01038	COBALT, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CO)
01038	COBALT, TOTAL IN BOTTOM MATERIAL (UG/G AS CO)
01041	COPPER, SUSPENDED RECOVERABLE (UG/L AS CU)
01041	COPPER, SUSPENDED (UG/L AS CU)
01042	COPPER, TOTAL RECOVERABLE (UG/L AS CU)
01042	COPPER, TOTAL (UG/L AS CU)
01043	COPPER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS CU)
01043	COPPER, TOTAL IN BOTTOM MATERIAL (UG/G AS CU)
01044	IRON, SUSPENDED RECOVERABLE (UG/L AS FE)
01044	IRON, SUSPENDED (UG/L AS FE)
01045	IRON, TOTAL RECOVERABLE (UG/L AS FE)
01045	IRON, TOTAL (UG/L AS FE)
01050	LEAD, SUSPENDED RECOVERABLE (UG/L AS PB)
01050	LEAD, SUSPENDED (UG/L AS PB)
01051	LEAD, TOTAL RECOVERABLE (UG/L AS PB)
01051	LEAD, TOTAL (UG/L AS PB)
01052	LEAD, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS PB)
01052	LEAD, TOTAL IN BOTTOM MATERIAL (UG/G AS PB)
01053	MANGANESE, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MN)
01053	MANGANESE, TOTAL IN BOTTOM MATERIAL (UG/G AS MN)
01054	MANGANESE, SUSPENDED RECOVERABLE (UG/L AS MN)
01054	MANGANESE, SUSPENDED (UG/L AS MN)
01055	MANGANESE, TOTAL RECOVERABLE (UG/L AS MN)
01055	MANGANESE, TOTAL (UG/L AS MN)
01061	MOLYBDENUM, SUSPENDED RECOVERABLE (UG/L AS MO)
01061	MOLYBDENUM, SUSPENDED (UG/L AS MO)
01062	MOLYBDENUM, TOTAL RECOVERABLE (UG/L AS MO)
01062	MOLYBDENUM, TOTAL (UG/L AS MO)
01063	MOLYBDENUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS MO)
01063	MOLYBDENUM, TOTAL IN BOTTOM MATERIAL (UG/G AS MO)
01066	NICKEL, SUSPENDED RECOVERABLE (UG/L AS NI)
01066	NICKEL, SUSPENDED (UG/L AS NI)
01067	NICKEL, TOTAL RECOVERABLE (UG/L AS NI)
01067	NICKEL, TOTAL (UG/L AS NI)
01068	NICKEL, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS NI)
01068	NICKEL, TOTAL IN BOTTOM MATERIAL (UG/G AS NI)
01076	SILVER, SUSPENDED RECOVERABLE (UG/L AS AG)
01076	SILVER, SUSPENDED (UG/L AS AG)
01077	SILVER, TOTAL RECOVERABLE (UG/L AS AG)
01077	SILVER, TOTAL (UG/L AS AG)
01078	SILVER, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AG)
01078	SILVER, TOTAL IN BOTTOM MATERIAL (UG/G AS AG)
01081	STRONTIUM, SUSPENDED RECOVERABLE (UG/L AS SR)
01081	STRONTIUM, SUSPENDED (UG/L AS SR)
01082	STRONTIUM, TOTAL RECOVERABLE (UG/L AS SR)
01082	STRONTIUM, TOTAL (UG/L AS SR)
01083	STRONTIUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS SR)
01083	STRONTIUM, TOTAL IN BOTTOM MATERIAL (UG/G AS SR)
01086	VANADIUM, SUSPENDED TOTAL (UG/L AS V)
01086	VANADIUM, SUSPENDED (UG/L AS V)
01091	ZINC, SUSPENDED RECOVERABLE (UG/L AS ZN)
01091	ZINC, SUSPENDED (UG/L AS ZN)
01092	ZINC, TOTAL RECOVERABLE (UG/L AS ZN)
01092	ZINC, TOTAL (UG/L AS ZN)

PARM. CODE	NEW TERMINOLOGY -- FIRST LINE OLD TERMINOLOGY -- SECOND LINE
01093	ZINC, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS ZN)
01093	ZINC, TOTAL IN BOTTOM MATERIAL (UG/G AS ZN)
01096	ANTIMONY, SUSPENDED TOTAL (UG/L AS SB)
01096	ANTIMONY, SUSPENDED (UG/L AS SB)
01101	TIN, SUSPENDED RECOVERABLE (UG/L AS SN)
01101	TIN, SUSPENDED (UG/L AS SN)
01102	TIN, TOTAL RECOVERABLE (UG/L AS SN)
01102	TIN, TOTAL (UG/L AS SN)
01105	ALUMINUM, TOTAL RECOVERABLE (UG/L AS AL)
01105	ALUMINUM, TOTAL (UG/L AS AL)
01107	ALUMINUM, SUSPENDED RECOVERABLE (UG/L AS AL)
01107	ALUMINUM, SUSPENDED (UG/L AS AL)
01108	ALUMINUM, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS AL)
01108	ALUMINUM, TOTAL IN BOTTOM MATERIAL (UG/G AS AL)
01116	CESIUM, SUSPENDED TOTAL (UG/L AS CS)
01116	CESIUM, SUSPENDED (UG/L AS CS)
01121	GALLIUM, SUSPENDED TOTAL (UG/L AS GA)
01121	GALLIUM, SUSPENDED (UG/L AS GA)
01126	GERMANIUM, SUSPENDED TOTAL (UG/L AS GE)
01126	GERMANIUM, SUSPENDED (UG/L AS GE)
01131	LITHIUM, SUSPENDED RECOVERABLE (UG/L AS LI)
01131	LITHIUM, SUSPENDED (UG/L AS LI)
01132	LITHIUM, TOTAL RECOVERABLE (UG/L AS LI)
01132	LITHIUM, TOTAL (UG/L AS LI)
01136	RUBIDIUM, SUSPENDED TOTAL (UG/L AS RB)
01136	RUBIDIUM, SUSPENDED (UG/L AS RB)
01146	SELENIUM, SUSPENDED TOTAL (UG/L AS SE)
01146	SELENIUM, SUSPENDED (UG/L AS SE)
01151	TITANIUM, SUSPENDED TOTAL (UG/L AS TI)
01151	TITANIUM, SUSPENDED (UG/L AS TI)
01161	ZIRCONIUM, SUSPENDED TOTAL (UG/L AS ZR)
01161	ZIRCONIUM, SUSPENDED (UG/L AS ZR)
01170	IRON, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS FE)
01170	IRON, TOTAL IN BOTTOM MATERIAL (UG/G AS FE)
01505	ALPHA, SUSPENDED TOTAL (PCI/L)
01505	ALPHA, SUSPENDED (PCI/L)
01506	ALPHA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
01506	ALPHA, SUSPENDED, COUNTING ERROR (PCI/L)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS U NATURAL)
01516	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/L AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS U NATURAL)
01517	GROSS ALPHA RADIOACTIVITY, SUSPENDED (PCI/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL (UG/G AS U NATURAL)
01518	GROSS ALPHA RADIOACTIVITY, SUSPENDED (UG/G AS U NATURAL)
03505	BETA, SUSPENDED TOTAL (PCI/L)
03505	BETA, SUSPENDED (PCI/L)
03506	BETA, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
03506	BETA, SUSPENDED, COUNTING ERROR (PCI/L)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/L AS CS-137)
03516	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/L AS CS-137)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL (PCI/G AS SR/YT-90)
03517	GROSS BETA RADIOACTIVITY, SUSPENDED (PCI/G AS SR/YT-90)

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PARM.      NEW TERMINOLOGY -- FIRST LINE
CODE       OLD TERMINOLOGY -- SECOND LINE
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03518  GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL
         (PCI/G AS CS-137)
03518  GROSS BETA RADIOACTIVITY, SUSPENDED
         (PCI/G AS CS-137)

07010  TRITIUM, SUSPENDED TOTAL (PCI/L)
07010  TRITIUM, SUSPENDED (PCI/L)

07011  TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07011  TRITIUM, SUSPENDED, COUNTING ERROR (PCI/L)

07014  TRITIUM, SUSPENDED TOTAL, COUNTING ERROR (TRITIUM UNITS)
07014  TRITIUM, SUSPENDED, COUNTING ERROR (TRITIUM UNITS)

07016  TRITIUM, SUSPENDED TOTAL (TRITIUM UNITS)
07016  TRITIUM, SUSPENDED (TRITIUM UNITS)

07052  CALCIUM 45, SUSPENDED TOTAL (PCI/L)
07052  CALCIUM 45, SUSPENDED (PCI/L)

07053  CALCIUM 45, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07053  CALCIUM 45, SUSPENDED, COUNTING ERROR (PCI/L)

07062  IRON 59, SUSPENDED TOTAL (PCI/L)
07062  IRON 59, SUSPENDED (PCI/L)

07063  IRON 59, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07063  IRON 59, SUSPENDED, COUNTING ERROR (PCI/L)

07082  RHODAMINE WT, SUSPENDED TOTAL (UG/L)
07082  RHODAMINE WT, SUSPENDED (UG/L)

07102  SELENIUM 75, SUSPENDED TOTAL (PCI/L)
07102  SELENIUM 75, SUSPENDED (PCI/L)

07103  SELENIUM 75, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07103  SELENIUM 75, SUSPENDED, COUNTING ERROR (PCI/L)

07122  SILVER 110, SUSPENDED TOTAL (PCI/L)
07122  SILVER 110, SUSPENDED (PCI/L)

07123  SILVER 110, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07123  SILVER 110, SUSPENDED, COUNTING ERROR (PCI/L)

07142  SULFUR 35, SUSPENDED TOTAL (PCI/L)
07142  SULFUR 35, SUSPENDED (PCI/L)

07143  SULFUR 35, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
07143  SULFUR 35, SUSPENDED, COUNTING ERROR (PCI/L)

09505  RADIUM 226, SUSPENDED TOTAL (PCI/L)
09505  RADIUM 226, SUSPENDED (PCI/L)

13505  STRONTIUM 90, SUSPENDED TOTAL (PCI/L)
13505  STRONTIUM 90, SUSPENDED (PCI/L)

13506  STRONTIUM 90, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
13506  STRONTIUM 90, SUSPENDED, COUNTING ERROR (PCI/L)

22705  URANIUM, NATURAL, SUSPENDED TOTAL (UG/L AS U NATURAL)
22705  URANIUM, NATURAL, SUSPENDED (UG/L AS U NATURAL)

28404  CESIUM 137, SUSPENDED TOTAL (PCI/L)
28404  CESIUM 137, SUSPENDED (PCI/L)

28405  CESIUM 137,SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28405  CESIUM 137,SUSPENDED, COUNTING ERROR (PCI/L)

28412  CESIUM 134, SUSPENDED TOTAL (PCI/L)
28412  CESIUM 134, SUSPENDED (PCI/L)

28413  CESIUM 134, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
28413  CESIUM 134, SUSPENDED, COUNTING ERROR (PCI/L)

29633  SCANDIUM 46, SUSPENDED TOTAL (PCI/L)
29633  SCANDIUM 46, SUSPENDED (PCI/L)

29634  SCANDIUM 46, SUSPENDED TOTAL, COUNTING ERROR (PCI/L)
29634  SCANDIUM 46, SUSPENDED, COUNTING ERROR (PCI/L)

39332  ALDRIN, SUSPENDED TOTAL (UG/L)
39332  ALDRIN, SUSPENDED (UG/L)

39342  LINDANE, SUSPENDED TOTAL (UG/L)
39342  LINDANE, SUSPENDED (UG/L)

39353  CHLORDANE, SUSPENDED TOTAL (UG/L)
39353  CHLORDANE, SUSPENDED (UG/L)
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PARM.      NEW TERMINOLOGY -- FIRST LINE
CODE       OLD TERMINOLOGY -- SECOND LINE
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39362   DDD, SUSPENDED TOTAL (UG/L)
39362   DDD, SUSPENDED (UG/L)

39367   DDE, SUSPENDED TOTAL (UG/L)
39367   DDE, SUSPENDED (UG/L)

39372   DDT, SUSPENDED TOTAL (UG/L)
39372   DDT, SUSPENDED (UG/L)

39382   DIELDRIN, SUSPENDED TOTAL (UG/L)
39382   DIELDRIN, SUSPENDED (UG/L)

39392   ENDRIN, SUSPENDED TOTAL (UG/L)
39392   ENDRIN, SUSPENDED (UG/L)

39402   TOXAPHENE, SUSPENDED TOTAL (UG/L)
39402   TOXAPHENE, SUSPENDED (UG/L)

39412   HEPTACHLOR, SUSPENDED TOTAL (UG/L)
39412   HEPTACHLOR, SUSPENDED (UG/L)

39422   HEPTACHLOR EPOXIDE, SUSPENDED TOTAL (UG/L)
39422   HEPTACHLOR EPOXIDE, SUSPENDED (UG/L)

39432   ISODRIN, SUSPENDED TOTAL (UG/L)
39432   ISODRIN, SUSPENDED (UG/L)

39502   AROCLOR, SUSPENDED TOTAL, 1248 PCB SERIES (UG/L)
39502   AROCLOR, SUSPENDED, 1248 PCB SERIES (UG/L)

39506   AROCLOR, SUSPENDED TOTAL, 1254 PCB SERIES (UG/L)
39506   AROCLOR, SUSPENDED, 1254 PCB SERIES (UG/L)

39510   AROCLOR, SUSPENDED TOTAL, 1260 PCB SERIES (UG/L)
39510   AROCLOR, SUSPENDED, 1260 PCB SERIES (UG/L)

39518   PCB, SUSPENDED TOTAL (UG/L)
39518   PCB, SUSPENDED (UG/L)

39533   MALATHION, SUSPENDED TOTAL (UG/L)
39533   MALATHION, SUSPENDED (UG/L)

39543   PARATHION, SUSPENDED TOTAL (UG/L)
39543   PARATHION, SUSPENDED (UG/L)

39573   DIAZINON, SUSPENDED TOTAL (UG/L)
39573   DIAZINON, SUSPENDED (UG/L)

39603   METHYL PARATHION, SUSPENDED TOTAL (UG/L)
39603   METHYL PARATHION, SUSPENDED (UG/L)

39733   2,4-D, SUSPENDED TOTAL (UG/L)
39733   2,4-D, SUSPENDED (UG/L)

39743   2,4,5-T, SUSPENDED TOTAL (UG/L)
39743   2,4,5-T, SUSPENDED (UG/L)

39757   MIREX, SUSPENDED TOTAL (UG/L)
39757   MIREX, SUSPENDED (UG/L)

39763   SILVEX, SUSPENDED TOTAL (UG/L)
39763   SILVEX, SUSPENDED (UG/L)

70299   SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED TOTAL (MG/L)
70299   SOLIDS, RESIDUE AT 110 DEG. C, SUSPENDED (MG/L)

71895   MERCURY, SUSPENDED RECOVERABLE (UG/L AS HG)
71895   MERCURY, SUSPENDED (UG/L AS HG)

71900   MERCURY, TOTAL RECOVERABLE (UG/L AS HG)
71900   MERCURY, TOTAL (UG/L AS HG)

71921   MERCURY, RECOVERABLE FROM BOTTOM MATERIAL (UG/G AS HG)
71921   MERCURY, TOTAL IN BOTTOM MATERIAL (UG/G AS HG)

80040   GROSS ALPHA RADIOACTIVITY, SUSPENDED TOTAL
          (UG/L AS U NATURAL)
80040   GROSS ALPHA RADIOACTIVITY, SUSPENDED
          (UG/L AS U NATURAL)

80060   GROSS BETA RADIOACTIVITY, SUSPENDED TOTAL
          (PCI/L AS SR/YT-90)
80060   GROSS BETA RADIOACTIVITY, SUSPENDED
          (PCI/L AS SR/YT-90)
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FACTORS FOR CONVERTING INCH-POUND UNITS TO INTERNATIONAL SYSTEM UNITS (SI)

The following factors may be used to convert the inch-pound units published herein to the International System of Units (SI). This report contains both the inch-pound and SI unit equivalents in the station manuscript descriptions.

Multiply inch-pound units	By	To obtain SI units
	Length	
inches (in)	2.54×10^{1}	millimeters (mm)
	2.54×10^{-2}	meters (m)
feet (ft)	3.048×10^{-1}	meters (m)
miles (mi)	1.609×10^{0}	kilometers (km)
	Area	
acres	4.047×10^{3}	square meters (m^2)
	4.047×10^{-1}	square hectometers (hm^2)
	4.047×10^{-3}	square kilometers (km^2)
square miles (mi^2)	2.590×10^{0}	square kilometers (km^2)
	Volume	
gallons (gal)	3.785×10^{0}	liters (L)
	3.785×10^{0}	cubic decimeters (dm^3)
	3.785×10^{-3}	cubic meters (m^3)
million gallons	3.785×10^{3}	cubic meters (m^3)
	3.785×10^{-3}	cubic hectometers (hm^3)
cubic feet (ft^3)	2.832×10^{1}	cubic decimeters (dm^3)
	2.832×10^{-2}	cubic meters (m^3)
cfs-days	2.447×10^{3}	cubic meters (m^3)
	2.447×10^{-3}	cubic hectometers (hm^3)
acre-feet (acre-ft)	1.233×10^{3}	cubic meters (m^3)
	1.233×10^{-3}	cubic hectometers (hm^3)
	1.233×10^{-6}	cubic kilometers (km^3)
	Flow	
cubic feet per second (ft^3/s)	2.832×10^{1}	liters per second (L/s)
	2.832×10^{1}	cubic decimeters per second (dm^3/s)
	2.832×10^{-2}	cubic meters per second (m^3/s)
gallons per minute (gal/min)	6.309×10^{-2}	liters per second (L/s)
	6.309×10^{-2}	cubic decimeters per second (dm^3/s)
	6.309×10^{-5}	cubic meters per second (m^3/s)
million gallons per day	4.381×10^{1}	cubic decimeters per second (dm^3/s)
	4.381×10^{-2}	cubic meters per second (m^3/s)
	Mass	
tons (short)	9.072×10^{-1}	megagrams (Mg) or metric tons